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MALIGNANT DISEASE AS A PROBLEM OF MODERN SURGERY.*

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There seems to be no question amongst qualified observers that malignant disease in all its forms is gradually becoming more prevalent with the civilized races. Rodman, Billings and others have collected statistics showing this to be the case in the United States and the same fact seems to be established as regards Germany, England and other countries. More than ever the surgeon is called upon to deal with this scourge of humanity. The time has passed when those whose duty it is to assuage the sufferings of mankind can be idle and allow any form of disease to permanently baffle them. It is but a short time since all but the most superficial and slight forms of malignant disease were regarded as inevitably fatal and indeed were hardly given the benefit of any attempt at treatment, unless perhaps we may consider as treatment the relief of pain only.

In all forms of malignant disease we face a pathologic process the true significance of which has so far remained beyond our understanding. Bacteriology and pathology, hand in hand, have shown us the cause and nature of pus infections. They have made clear the origin and fundamental process of many of the infectious diseases. Syphilis, whose causative factor was found but five years ago, bids fair soon to be under control. At the same time preventive medicine has under favorable conditions minimized such diseases as typhoid, cholera and yellow fever. In comparison with the great strides which we may observe on every hand in other fields of medical research, we still are well nigh powerless when it comes to malignant tumors.

Let it not be supposed that our efforts have been fruitless. No one who has followed the trend of surgery or of cancer research can fail to be convinced that our investigators are upon the right track and that we must soon emerge from the darkness of comparative ignorance into the light of definite knowledge.

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Malignant disease has been known for centuries—it is, as I have said, upon the increase. There is not a community in which it is not present, and every day in one form or another it has its victims. Countless men have labored to discover the cause of this mysterious process and are still doing so, yet we do not know the etiology of malignant growths.

The theory that carcinomata and allied growths are due to the development of misplaced embryonal tissues in localities where their growth has made them pathological has been definitely set aside. The transplantations of neoplasms, the apparent infectiousness of certain forms of cancer in fish, and many other pathological facts concerning the dissemination and minute structure of carcinoma renders this view of its origin untenable.

With the rise of bacteriology there came the hope that within the field of simple or even unicellular vegetable organisms we might find the causative factor of malignant processes. A few years ago this perhaps was our only hope. It also has failed us. Certain over-sanguine investigators have from time to time declared this or that bacterium to be the essential factor in carcinoma. Doyen still asserts that his micrococcus neoformans "is the specific agent at fault." I am convinced that there is no form of germ life which has as yet in any way been proven to be responsible for any form of malignant growth.

In later years again protozoan diseases came to the forefront. With the spread of civilization and commerce into tropical and semi-tropical countries it was found that disease about the equatorial regions was largely caused by low forms of animal life, such as trypanosomes. Sleeping sickness, kala agar and other diseases were found to be forms of trypanosomiasis. The brilliant investigations of Bruce, Leishmann, Koch, Laveran and others have placed the study of animal protozoan life on a par with bacteriology. Even before the investigations into the protozoa that affect the human species, we were able to discover that the lower animals, rodents, fish, and birds, have many diseases caused by trypanosomes. But there has never been any evidence adduced to encourage the hope that in the domain of protozoa—either trypanosomes or he-

matocytes have we the solution of the cancer problem.

There have been certain recent investigations into the carcinomata and sarcomata of the lower animals, particularly of mice, which have thrown much light upon our conception of both the transmissibility of malignant growths and upon the production of a certain degree of immunity toward malignant processes.

They have demonstrated that certain mouse tumors, while not infectious for other species of animal life, can be transplanted almost indefinitely from host to host in the same species. And not only this, but also they generally correctly transmit the characteristics of the original tumor. Moreover, after repeated transference of tumors they seem to lose their virulence so that spontaneous cure may result, and in such mice there is established an immunity to subsequent inoculations. There has been but one instance in the human being of the use of body fluid from a patient who had apparently had a spontaneous cure of carcinoma. This is the well-known instance reported by the late Dr. Hodenpyl. Perhaps such serum treatment may offer us something of value in the future.

Before leaving the subject of etiology and pathological physiology of malignant growths I wish to call attention to several points.

Recent studies upon the thyroid carcinoma of fish have seemed to establish the fact that certain forms of malignant growths in the lower animals may assume more or less an epidemic character. It is true that it has been asserted that the specific tumor mentioned is not a true carcinoma, yet it resembles it sufficiently to be so classed. While it is true that carcinoma is more prevalent in human beings in certain localities and times, nothing has ever shown us that it is directly transmissible in the way that infectious diseases are.

The influence of diet and especially of water in causing malignant growth is as yet not determined. There is some evidence, however, that the specific cause of thyroid carcinoma of trout is always present in certain bodies of water. An interesting fact in this connection mentioned by Gaylord is that puppies brought to such a body of water known to be infected almost without exception develop thyroid enlargement.

The nearest approach to transmission of carcinoma or other malignant growth in the human species we find in the occurrence of chorion epithelioma. This is practically a malignant growth originating by the transplantation of remaining fetal tissues into the maternal organism. It offers other interesting peculiarities of which I shall speak later.

Mrs. ——, aged 24 years, has given birth to one child. Three months after the birth of the child, the patient commenced having metrorrhagia, which increased in severity but without pain. At the time of the operation curettage was accompanied by such severe hemorrhage that it was deemed best to do vaginal hysterectomy.

Pathological examination of the uterus showed chorion epithelioma.

The patient is now, fours years after operation, entirely well.

Heredity was formerly supposed to play an important part in the causation of malignant neoplasms. While I believe that it is undoubtedly true that a patient may have inherited from his ancestors a form of body tissue so vulnerable to malignant invasion that he may be considered predisposed to it, yet I have never seen an undoubted case of inheritance of malignant growth.

Trauma has always been known to play an important part in at least giving rise to a favorable situation for the growth of carcinoma, if not actually causing it. The classical examples of the preponderance in smokers of lip epitheliomata, and the infrequency of carcinoma of the cervix uteri in those women who have never borne children (5 per cent. only, Bland-Sutton), are so well known that they need but be mentioned. Abdominal surgery has shown the influence of other than mechanical trauma. Thus we know that not infrequently carcinoma is implanted upon pyloric ulcer. The Mayo clinic has found this change in 54 per cent. of cases, while Mr. Moynihan and Fenwick have also called attention to the same feature. There can be no doubt then, that previous traumatism is in part responsible for the occurrence of malignant change.

The most interesting form of malignant growth caused by trauma, other than that of the purely mechanical variety, is the skin carcinoma caused by continued exposure to the *x*-ray. The exact mode or action of the *x*-ray in giving rise to malignant degeneration in skin irritated by the too frequent exposure to the rays has not yet been determined.

Histological studies upon mouse cancer and others have given us an insight into the possible spontaneous cure of carcinoma. They have shown that the growth of a cancer is not, as was formerly supposed, a steadily progressive and irresistible process. In every implanted carcinoma or mixed tumor there is a constant endeavor of the healthy body cells to overcome the newcomer by "fibrous strangulation," as it may be called. The new growth, while it becomes vascularized by the pro-

motion of a connective tissue stroma which the host supplies, is nevertheless continually attacked. The host attempts to surround and gradually crush the malignant growth. At times the process appears to be entirely successful. The complete encapsulation of malignant emboli within blood vessels and in the lungs is another evidence that the host is not always losing, but is overcome, so to speak, by successive changes of the malignant growth.

Instances of spontaneous recovery from carcinoma and other malignant growths are not unknown in human beings. The recovery of patients suffering from pyloric growths after exploratory operation occurs at times. Barling has recently reported an instance of spontaneous recovery from chorion epithelioma, ordinarily so virulent. Involution of scirrhus of the breast has been observed on numerous occasions.

But perhaps the most encouraging feature of all our experimental and chemical evidence is the undouted fact that all malignant growths are shown to be purely local processes in their onset. Examination of early carcinomata and sarcomata in human beings—some accidentally discovered after removal of a part at operation, prove that they begin as well localized foci. The same is true of experimentally produced carcinomata. How important this must be is very evident. If we could happily arrive at a diagnosis before our lesion has spread beyond limited confines the problem of treatment would take on an entirely different aspect. Surgical interference in the early stages of all but a few inaccessible malignant growths would doubtless cure them all.

In addition, before considering the practical side of the question at issue, I would call attention to the difference in malignancy of growths pathologically similar in corresponding areas in different patients. Spontaneous cure we know is possible. Occasionally we find groups of tumors whose microscopical characteristics show them to be true carcinomata, yet whose clinical course is markedly benign. Carcinoma of the appendix vermiformis belongs to this group. Its location surely would predispose to lymphatic distribution, yet it is almost unknown for one to spread or give rise to metastases.

Granted then that carcinoma is at its beginning essentially a localized process it is evident that early recognition and prompt removal are indicated in every case, if possible.

The *diagnosis of malignant disease* has made considerable strides, yet we are still compelled to rely practically entirely upon clinical findings. The laboratory perhaps enables us to discover earlier evidences of mild anemia than we may appreciate by examination, but there its usefulness ends. Nevertheless in certain cases, carcinoma and sarcoma, even when widely invading important internal structures, do not cause anemia. I have lately operated upon pyloric carcinoma involving the surrounding tissues to a great extent in which the hemoglobin was 95 per cent., red blood cells 5,000,000. The highest red blood count I have ever observed was in a case of sarcoma of the retroperitoneal glands.

There has not yet been discovered any specific serum or hemolytic reaction in patients suffering from cancer. A number have been suggested, but are equal in their lack of true value. The chemistry of the blood, however, is an ever advancing science and it is conceivable that some such reaction may in the future be discovered. Since there are so many different varieties of malignant tumors it seems hardly likely that one reaction would suffice for all of them, even carcinoma, and still less for sarcoma. So far the serum reaction for carcinoma has proven but a false hope, defective and not valuable.

Malignant growths as to diagnosis divide themselves into several classes. We have always been more easily able to ascertain the true nature of superficial growths, for they are visible and palpable. Two factors, however, enter into consideration here. The first is the varying malignancy of epithelial tumors in different subjects, and the second is the frequent early glandular metastasis in cases which locally show but a slight tendency to spread.

It is in the diagnosis of malignancy within the cavities of the body that we have made most progress, and I can say with assurance that this has been due to the surgeon more than to the internist or the pathologist.

I have often spoken of "autopsy in vivo"—of the investigation of pathological processes which the surgeon can observe during life, whereas they are hidden to the internist. To illustrate my point I need only mention a few concrete examples.

Carcinoma of the stomach was formerly diagnosed only by three points, cachexia, palpable tumor and pyloric obstruction. I maintain that none of these is a diagnostic symptom of stomach cancer, they are rather symptoms of a failure to recognize it early and a reflection upon anyone who waits for their appearance before diagnosing the condition. Our carefully taken histories of the present day

combined with prompt surgical intervention enable us to achieve results which would formerly have been considered impossible.

By careful and persistent comparison of case records with operative findings and post-operative histories we have come to recognize what might be called the symptom-complex of incipient gastric carcinoma.

Occasionally there comes to the hands of the surgeon a case of carcinoma of the stomach in its earliest stages, but in the vast majority of instances the sufferer from malignant disease has been treated for months for anacidity, dyspepsia or nervous dyspepsia. The anemia has progressed unnoticed until it is so evident that it attracts the patient's own attention. Progressive emaciation has been attributed to lack of nourishment and faulty metabolism. And all the while there has been a picture of progressive tissue change such as only malignant growth could cause.

I am firmly convinced that every case of persistent dyspepsia in persons beyond middle age should at once be studied with reference to the possibility of cancer. Here again our laboratory tests fail us. Examination of the stomach contents in early cases of carcinoma means nothing. Late, indeed, when we have retention it shows that the stomach contents are undergoing putrefaction. The Oppler-Boas bacillus, once considered as diagnostic of carcinoma of the stomach, signifies nothing other than the stagnation of the good within the stomach and its fermentative destruction.

The signs of early carcinoma of the stomach, which, as we know, is generally pyloric or prepyloric in location, are not always clear. Far from it. The signs of early upper abdominal disease, whether of gastric, biliary or pancreatic origin, are in many ways similar; yet in a patient beyond middle age in whom we have anorexia and particularly an aversion to meat, suddenly beginning without apparent cause and insidiously progressing, in whom there is a vague gastric distress, a beginning anemia, a steady if slight loss in weight, we must always suspect malignant disease. And if the condition does not show marked response to the ordinary hygienic and dietetic measures, the surgeon should be called upon to discover and remedy the fundamental cause of the symptoms.

No one could be more opposed than I am to the exploratory operation when this is taken to mean the opening of the abdominal cavity to cover the shortcomings in knowledge of the surgeon. No one is less prone to perform such an operation when it seeks to do away with competent and continued study of a case. Yet there are, and always must be, instances especially within the range of abdominal conditions in which we offer the patient a far better chance of recovery by early and *perhaps useless* operation than by delay and *surely useless* operation.

With all our progress in the earlier diagnosis and earlier treatment of gastric carcinoma our ultimate results are still most discouraging. How few of our cases came to us early enough to *cure*. How few cases remain well after even our most radical measures. Bloodgood has well said that in malignant disease the clinical diagnosis is difficult in inverse ratio to the duration of the disease. This is particularly true in gastric lesions. We must then of necessity operate in some cases in which our diagnosis is not confirmed if we are to seize upon the favorable moment for any of those in which we have correctly appreciated the lesion present.

In speaking of trauma as a factor in the causation of malignant disease I have mentioned the frequency with which ulcer gives rise to carcinomatous degeneration. Wright has lately emphasized this point. We may almost speak of gastric ulcer when it is chronic and associated with much induration as one of the so-called pre-cancerous states.

The duty of surgery in the prophylactic treatment of cancer should not be lost sight of. Since the rôle of ulcer in the causation of gastric carcinoma has been so clearly demonstrated who can deny the need of prompt and proper surgery of gastric ulcer? Who can tell how many cases of this disease that have shown temporary improvement under medical treatment have in after years progressed to carcinomatous degeneration at the site of the ulcer? There is in all probability even some chance of the degeneration of a temporarily healed ulcer. There can be no question about the superiority of surgical treatment in its immediate results and particularly in its prevention of future severe complications.

Carcinoma of the gall bladder and biliary passages is fortunately rare, though it is seen occasionally in the course of any extended series of operations upon the biliary tract. In practically every instance it is secondary to the presence of gall stones. In fact, carcinoma of the gall bladder presents perhaps our best example of malignant growth in an internal viscus as a sequel to purely mechanical trauma. Here again the surgeon is often helpless when the condition has been well established, yet is able to remove and cure the possible future cause of

carcinoma. The surgical treatment of gall stone disease is cancer prophylaxis in its most evident type.

Along the alimentary tract from the stomach to the rectum carcinoma is not at all infrequent. Here again we often see examples of cases palliatively treated for long periods of time until the very positiveness of the diagnosis at the same time proclaims the hopelessness of treatment. In intestinal carcinomata we have not the age of the patient as so sure an index of the probable nature of the disease as in gastric carcinoma. Carcinomata and especially sarcomata of the large and small intestine are by no means unknown in even young adults. More frequent by far are growths of the large intestine and fortunately for us they are easiest to diagnose. When we see a patient, particularly at the cancer age of life, who presents evidence of intestinal indigestion, with perhaps alternate constipation and diarrhea and the occasional presence of blood in the stools we should at once think of malignant change, even in the absence of a palpable tumor or a marked cachexia. In this connection we have a laboratory test which is of considerable value. The test for occult blood enables us often to detect the presence of minute quantities of blood in the feces which otherwise it would not be possible for us to observe. Here again I would urge the value of an exploratory operation in the true sense of the word, for we do not have long-continued and marked disturbances of intestinal function without marked pathological causes therefor.

Perhaps even more than is the case with disease of the stomach physicians as a rule are prone to disregard the value of a careful anamnesis and physical examination of the patient in intestinal disorders of the chronic variety. Many patients indeed with rectal growths go from one physician to another before one makes a complete examination, digital and instrumental.

Intestinal growths in their early stages present one of the most favorable types for operation and their location generally permits of complete removal with a large area of healthy adjacent tissue and the corresponding lymphatic glandular area. Even in the comparatively late stages of the disease unless the lymphatic distribution has become too greatly infected or the growth has spread too far into the mesentery or surrounding viscera our ultimate results are often surprisingly good. The later studies upon the relationship of various segments of the intestinal canal with abdominal lymphatic chains enable us often to remove the whole affected lymphatic area and those glands within it not yet involved. Moreover, the improvement in technic brought about by the use of various methods of mobilization of the large gut by swinging it partially free of its mesenteric and peritoneal attachments, while preserving the blood supply, has enabled us to overcome many of the mechanical difficulties formerly associated with resection of the bowel.

Carcinoma of the bladder has as a rule been regarded as hopeless. The cystoscope has proven of vast value in this field. By its use in the hands of skilled men we are able to diagnose malignant growths within the bladder at a stage when formerly they could not be correctly diagnosed. There can be no excuse for allowing a case of simple hematuria, terminal hematuria, or persistent hematuria, to progress without having the source of the abnormal urinary constituents localized by the aid of the cystoscope and the ureteral catheter.

An even later stage of procedure within the bladder is the removal of small portions of tumors for diagnostic purposes by the operating cystoscope. This is a method still in its infancy. Cases have even been reported of the removal of benign myomata by electrothermic instruments within the bladder guided by cystoscopic observation. I cannot but feel that the proper way to approach bladder growths is by the open method through the abdominal incision.

Formerly, practically all bladder operations were performed extraperitoneally, and by this method there is no doubt that we have often failed to secure proper exposure of the field and complete removal of the growth. The newer method of intraperitoneal approach to the bladder probably offers us the solution of the complete extirpation of growths which have deeply invaded the fundus of the viscus. And in view of the success which has attended such procedures we should not hesitate to apply them when they are indicated. There is no doubt that the intraperitoneal bladder operation has passed beyond the experimental stage and is upon a firm footing.

The field of gynecological surgery offers one permanent example of the need of educating the laity to an appreciation of the insidious way in which cancerous growths have their onset. It has been a matter of great difficulty to educate the medical profession in the knowledge that every metrorrhagia in a woman at or near the menopause is a sign which must be most carefully considered. Often indeed such cases progress to a complete cessation of the uterine flow without further difficulties than those dependent upon the resultant

anemia. Some, however, indicate by their progress that there is some uterine condition other than a mere myopathic or vascular one. Among the laity indeed such matters have been treated as trifles until uterine carcinoma makes itself manifest at an inoperable stage. The importance of at once consulting a physician upon the appearance of a fetid leucorrhea or one which presents even the smallest portion of blood cannot be too strongly insisted upon.

Of late years there has been a systematic effort in Germany to reach the laity and instruct them as regards this matter. The effort is a laudable one. But we must not lose sight of the fact that many of our own profession have not yet come to realize the importance of the early recognition of uterine carcinoma of all varieties and the hopelessness of late operations in this condition.

The operation devised by Wertheim and used in various modifications by American operators, has for its object the extirpation of a carcinomatous uterus together with adjacent tissues and particularly the pelvic lymphatic about the great vessels into which its infection is liable to be spread. No one can deny that every attempt at radical operation in carcinoma is better than a palliative one if it does not involve too high an initial mortality. Yet I am certain that operations at a stage of uterine carcinoma when such an extensive procedure is necessary must in the vast majority of cases be futile. Such has been my experience and that of many others. Our hope in cancer of the uterus lies in two directions: First, in the education of physicians to recognize its early manifestations, and the education of the laity as regards prompt professional advice in seemingly minor pelvic conditions. Second, in the use of the microscopic and pathological diagnosis in cases of curettage for intrauterine disease. I would mention also the recognition of the fact that erosions of the uterine cervix beyond middle age are far more often malignant than has been supposed and in their earliest stages are favorable cases for radical and completely curative operation.

But by far the widest field for the use of the immediate pathological diagnosis in determining the scope of operation and its prognosis we find in malignant tumors of the breast. It is a well-known fact that every tumor of the breast beginning at the so-called cancer age is sufficient to cause the physician the gravest apprehension and should be treated as if were a malignant growth, if a clinical diagnosis alone is to be depended on. This also holds true of all breast tumors of long standing which suddenly show a marked acceleration of growth.

Recent pathological studies have shown us that the borderline between benign and malignant tumors of the breast is by no means a definite one and that tumors in their incipiency benign, may later undergo rapid malignant change. Moreover, we have ample statistical evidence of the frequent occurrence of malignant tumors of the breast in early adult life and even in adolescence.

By careful training of our faculties of observation and long experience we can no doubt attain a degree of certainty in the diagnosis of breast tumors which will closely approach that of a rapid microscopic examination. Yet our success with frozen sections has been such as to establish them firmly as an important aid.

In breast tumors, especially, a frozen section will on the one hand often demonstrate to us the uselessness of a radical operation in a growth previously supposed to be malignant, and on the other hand will often show an apparently simple chronic mastitis or fibroadenoma to be a growth which is beginning to show the characteristics of malignant change.

In my own clinic frozen section diagnoses have been almost without exception correct. This has also been the experience at the Massachusetts General Hospital, at Johns Hopkins, in the Clinic of the Mayos at Rochester, Minn., and in many other institutions.

When we have established the malignancy of a breast tumor by clinical diagnosis or frozen section it is imperative to perform a radical operation. The recent investigations of Handley upon the spread of malignant growths of the breast by the invasion and spread in successive tissue layers and the method of spread by means of the lymphatics make it necessary to remove both the subjacent tissues and the axillary glandular structures.

It has sometimes been questioned whether a radical operation when the axilla is not invaded will not spread rather than avoid infection, but this may safely be answered in the negative.

An interesting fact pointed out by Bloodgood is that of the recurrences in breast tumors observed by him in a series of cases from Halsted's clinic, many were in cases supposed to be favorable and consisted of carcinomata within the skin scar. He attributes this to the disinclination of the surgeon to perform most radical operations when a less complete one would seem sufficient. I must agree that no matter how favorable the growth, if we are to

perform a radical operation it should be complete in order to give us the best chance of permanent cure, even when a less mutilating procedure might seem sufficient.

It will be seen from the foregoing remarks that the problem of treatment and cure of malignant disease depends entirely upon *early diagnosis and surgical treatment.* Perhaps the only instance in which of late years it has seemed that our procedures have been too radical has been the case of sarcomata of bones; Bloodgood has lately pointed out that many of these, especially sarcoma of bones in the extremities which were formerly treated by the most radical procedures have seemed to recover with simply local palliative operation. It is indeed true that perhaps we have been too radical, yet the danger that we may become too conservative in dealing with malignant neoplasms of bones must not be lost sight of.

There is every reason to hope that at some time in the future there will be discovered not only the specific cause of malignant growths, but also some way of recognizing them earlier than we are at present able to do by clinical methods, and I am convinced that in the course of time experimental research will show us not only the cause of malignant tumors, but will point the way to some other method of cure than by surgical intervention. But until this time arrives and until we are convinced that our non-operative methods are absolutely certain to cure, we must rely entirely upon early and radical surgery.

As I have stated before, all carcinomata are in the early stages purely local and, unless in some entirely inaccessible place, curable. For the present we must exert all our energy toward refinement of diagnosis and perfection of technic, in this way only will our late results in the treatment of malignant growths show improvement.

MUSCULOSPIRAL PARALYSIS AND FRACTURES.

In cases of fracture associated with musculospiral paralysis, some surgeons have suggested that no time is lost or damage done in waiting until the fracture has united. There can be no serious objection to this method of procedure, especially in view of the fact that months have elapsed in some cases where the nerve has been completely severed and a perfect result obtained after suture; however, it is best to approximate the ends as soon as possible, as the longer they remain asunder the greater will be the time of recovery and the less likely we are to obtain a good result.—A. H. BARKLEY in the *Kentucky Medical Journal.*

ABDOMINAL PAIN: ITS DIAGNOSTIC SIGNIFICANCE IN SURGICAL DISEASES.

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Acute intra-abdominal pain, or colic, indicates a lesion of the peritoneum, or of its afferent nerves. The viscera which are capable of colic are in relation to the peritoneum. Over-distension of the esophagus does not produce colic, but distension of the intestine does. The ureter is susceptible to colic, but not the urethra. Colic is a disorder of the peritoneum. The milder abdominal pains which do not have to do with the hollow or tubular viscera cannot be called colic.

Rigidity of the muscles of the abdominal wall is a protective manifestation directed to preventing pressure from being inflicted upon the diseased peritoneum-covered viscera. It is one of the important manifestations of pain. It persists in all inflammatory diseases of the peritoneum until the local nerve function is destroyed or until the absorption of toxins obtunds the sensibility of the nerves.

A patient with abdominal pains should under all circumstances have the benefit of an examination of the bared abdomen. While this may seem like an unnecessary admonition, still it is too common a practice among some physicians to prescribe for abdominal pain without such an examination, and many of the cases of serious disease which come to the surgeon too late can be charged to this neglect.

In palpating the abdomen for pain, the greatest gentleness should be employed and the confidence of the patient should be secured. Voluntary and involuntary muscular rigidity should be differentiated, as it is the latter which characterizes inflammatory conditions involving the peritoneum. When the most complete relaxation possible is desired, together with the consciousness and pain appreciation of the patient, by immersing the trunk in a warm bath at a temperature of 107 deg. F., the best results will be secured.

In *gastric ulcer,* pain may not be a prominent symptom, although it is usually present. It is commonly referred to a small area in the epigastrium. Diffuse pain speaks against gastric ulcer. It develops gradually, is of a burning, cutting or boring nature, and radiates to the back or precordium. Usually the pain radiates towards the left subscapular region. Pain under the right scapula suggests ulcer of the pyloric region. The pain is increased

by food. Precordial pain suggests ulcer of the front and upper part of the stomach. If the pain begins within a half-hour after eating, the ulcer is probably near the cardiac orifice or at the lesser curvature. If near the pylorus, the pain comes on one, two or three hours after eating. Fluid foods cause the least pain.

Epigastric tenderness in ulcer of the stomach is usually well marked. Often the recti are rigid. The tenderness is usually localized in a small area. Rarely it is more diffuse. The most common location of tenderness is a small area in the middle line nearer the ensiform cartilage than the umbilicus. In an old ulcer which has become indurated tenderness may be absent. A tender point is sometimes found in the back just to the left of the ninth or tenth dorsal vertebra.

Vomiting usually relieves the pain. An ulcer may by reflex irritation cause spasm of the pylorus, which is painful. The vague discomfort called gastralgia may arise from an ulcer. It is solid food which usually induces the pain. The ingestion of water rarely causes it. The pain which is brought on by taking food usually lasts for some time, often until the stomach is emptied, or an alkali, demulcent, or local anesthetic administered. The pain may exceptionally be general, heavy, aching, and dull. It may occur only after some dietary excess or indiscretion. If pain is constant, persisting when the stomach is empty, as well as after food; if it is present before breakfast, it is probably not due to gastric ulcer. Hyperacidity does not cause pain unless there is an abrasion of the mucosa. For an admirable discussion of this subject the reader is referred to a paper on gastric ulcer by Dudley Roberts, in the *Medical Record,* October 17, 1908.

In *gastric cancer* the pain is quite variable. It may be absent. There may only be a sense of discomfort after eating. About 10 to 15 per cent. of cases do not show pain as a prominent symptom. When present, it may be continuous with exacerbations after eating. In many cases it is present only after the ingestion of solids. It is not distinctly localized as ulcer. When the disease causes pyloric obstruction, the peristaltic contractions cause a cramp-like pain, which is relieved by vomiting. The pain is usually referred to the epigastrium. In some cases it passes through the back, or it may be felt only in the back. Tenderness as a rule is absent. Fluids give the least pain. Other tumors of the stomach, such as sarcoma, usually give some pain.

In *ulcer of the duodenum* the pain is delayed after taking food. It may not occur until four hours after a meal. It often radiates to the subscapular region of the right side or along the costal margin to the lumbar region. Often the pain is relieved by the ingestion of food. At night digestion is slower and the pain may not appear until six hours or more after the last meal. The patient thus awakened in the night may relieve the pain by taking a glass of milk.

Pancreatic disease, whether acute or chronic inflammation, lithiasis, cyst, or neoplasm, is usually associated with pain. Certain slow degenerative changes give no pain. The epigastrium is usually its seat. At times it is referred to the back. Sometimes the pain is a colic, often mistaken for disease of the bile-tract or intestine. The pain is not characteristic and varies much with the nature of the disease. It is of value as a diagnostic sign only when considered with the other symptoms. A chronic jaundice, accompanied with some slight epigastric discomfort and enlargement of the gall bladder, with no colicky attacks referable to the bile tract, should suggest enlargement of the head of the pancreas. Such an enlargement may be due to inflammation or cancer, but most probably the former.

Acute pancreatitis should be thought of when sudden pain develops in a previously healthy individual, in the upper abdomen, with rigid recti, vomiting, collapse, distention, constipation and the urinary and fecal signs of the disease. The pain of this condition must be differentiated from that of embolism of the mesenteric artery, perforating duodenal or gastric ulcer, acute intestinal obstruction and acute biliary disease.

In *disease of the biliary tract,* the pains are located in the right hypochondrium and tend to radiate toward the right shoulder. If pressure in this region causes pain which radiates to the right scapular region the disease is probably in the bile tract rather than in the stomach. In cholelithiasis the pain is usually not relieved by vomiting, in ulcer of the stomach it is. In acute painful disease of the gall bladder the patient is unable to take a deep inhalation when the examiner's fingers are hooked under the right costal arch. Chill usually indicates lithiasis in differentiating between gastric ulcer and gall-stone pains. Long intervals between painful attacks suggest cholelithiasis. In malignant disease of the bile tract pain is absent, or but very slight. Colicky pains and tenderness over the gall bladder indicate cholecystitis, but it should not be

forgotten that a high-lying appendix, acute inflammation of the head of the pancreas, and acute hydronephrosis may produce similar pains.

In *typhoid ulcer* the pain is usually in the lower right quadrant of the abdomen. Tenderness can be elicited from the beginning of the ulceration. As soon as the ulcerative process has produced local inflammation of the peritoneum protective rigidity of the abdominal muscles appears. When perforation takes place, there is depression with sudden pain which at first is rather general and then is referred to the location of the perforation.

The pain of *appendicitis* in acute attacks is first referred to the region of the umbilicus, and then after a few hours becomes localized in the right side of the abdomen in the region of the appendix. Sudden subsidence of severe pain indicates perforation. The protective rigidity of the overlying abdominal muscles is characteristic. The pain is chronic, appendicitis is variable. It may be vague, expressed in local discomfort, dragging, or manifest in reflex discomforts. There may be no pain. Tenderness in appendicitis will usually be found most acute just at the site of the most active inflammation. This may be at the top of the appendix or anywhere in its length. It should be remembered that McBurney's point usually represents the base of the appendix. If a line is drawn from the point of greatest tenderness to McBurney's point, the line will generally show the direction and position in which the appendix lies.

There are many forms of abdominal pain which must be differentiated from that of appendicitis. *Tuberculosis* of the cecum gives a constant discomfort. In *cancer of the cecum* the pain is colicky, while the lumen of the gut is but little encroached upon, but when it becomes much narrowed the pain becomes that peculiar to intestinal obstruction. *Rheumatoid arthritis of the spine* often gives periodic pain which is referred to the nerve terminals. If the disease involves the lower dorsal or upper lumbar joints the referred pain may be in the lower anterior abdominal wall. This hypersensitiveness is superficial, and any muscular rigidity caused by it is overcome by prolonged pressure. In *tabies dorsalis*, the abdominal crisis may simulate appendicitis, but, as in spinal arthritis, steady pressure causes relaxation. *Herpes zoster* of the last two dorsal or the first two lumbar nerves gives a pain which is continuous, intense and boring, but rarely colicky or intermittent. The hypersensitiveness is discovered to be in the abdominal wall. Incidentally it should be observed that the herpetic vesicles which appear on the third or fourth day should not be mistaken for the results of local applications made to relieve the pain. *Typhoid appendicitis* occur usually in the first week of typhoid. The pain is similar to the early pain of appendicitis, but less severe. Inflammation of *Meckel's diverticulum*, if in the right iliac region, is difficult to distinguish from appendicitis. There is a less severe colic, and the pain is more that of localized peritonitis. *Perityphlitis* gives a pain with less colic than appendicitis, but with local tenderness and rigidity depending upon whether there is peritonitis or not. No rigidity usually means no peritonitis. *Appendicular colic* without inflammation gives the pain peculiar to appendicitis, but little or no real muscular rigidity. *Acute intestinal colic* does not present rigidity of the muscular wall. Many of the other following conditions require to be differentiated from appendicitis.

Thrombosis of the mesenteric artery is characterized by sudden excruciating pain in the mid-abdomen, with shock and the other signs of gangrene of intestine. It is one of the most severe of abdominal pains. The subsequent pain, if the patient survive, is that of intestinal obstruction and peritonitis. *Acute enteritis* may give pain, but not the rigidity of peritoneal disease. The pain of appendicitis has also been confused with that of *right pneumonia* and *abscess of the right ovary*.

Acute intestinal obstruction begins with an acute colicky pain, coming and going in waves. The rigidity of the muscles does not appear until peritonitis develops. Borborygmus precedes the pain waves. The above pain without fever, but with vomiting and localizable distention, indicates obstruction. The rumbling of the bowels and the belching of gas by mouth, along with the wave-like peristaltic movements of the intestine, which can be seen often through the abdominal wall, all preceding and running into the colicky pains, are characteristic of acute intestinal obstruction.

In the female generative organs many conditions produce abdominal pain. The painful *contractions of the uterus* which signal the beginning of labor are intermittent. At first they are short in duration, a minute or less, and feeble, with intervals of relaxation of half an hour or more. There is no contraction of the abdominal muscles or muscular rigidity. The early pains are described as cutting or grinding in character. As the cycles grow shorter the pains become more intense. They become stronger, longer, and the intervals shorten. The tenderness of *acute metritis* is distinctly local-

ized in the uterus. *Salpingitis* and *oophoritis* cause pains referred to the lower abdomen. When fluid distends a tube or cystic ovary in the presence of acute inflammation the pain may be colicky, but usually it is continuous. Rarely at first it may be referred to the umbilical region and cause nausea, but the tenderness is always localized at the disease. As the peritoneum becomes involved the rigidity becomes more pronounced, but it is not apt to be so marked as in appendicitis. The pain and tenderness are lower and nearer the middle line than in appendicitis. The tenderness is apparent through the vaginal fornices.

Ectopic gestation gives a mild colicky pain as the tube distends. This usually is present for a week or two before the rupture of the tube takes place. The pain is in the lower abdominal region on one side. The rupture of the tube is accompanied usually with acute pain followed by the characteristic symptoms, the chief of which are due to the hemorrhage. In some cases the pain has been referred to the hypochondrium. When this phenomenon is on the right side, gall stone disease may be similated. *Twisted ovarian pedicle* causes an acute pain which is continuous and not associated at first with rigidity of a marked degree. The pain is often described as of a sickening character. A tender tumor is usually palpable, which is easily determined not to be due to infection.

The pains arising from the urinary organs often involve the abdomen. A *distended bladder* has given pain which was mistaken for that of peritonitis. *Ureteral colic* is due to traumatism to the wall of the ureter usually by a distending body or by obstructed urine. Calculus causes an excruciating pain which is felt in the loin and lateral abdomen and radiates to the groin, scrotum or vulva, and penis. The pain suddenly ceases when the stone slips back into the pelvis of the kidney or enters the bladder. The abdomen is not rigid to palpation. *Renal colic* presents the peculiar kidney pain, usually referred in the same direction as that of ureteral pain.

Movable kidney causes pain when it produces a flexion of its pedicle. Angulation of the ureter or renal vessels causes a sudden severe pain similar to that of ureteral colic. It suddenly subsides when by change of position or from some other cause the kidney resumes a position which relieves the angulation. Dilatation of the renal pelvis by valve formation, angulation, or obstruction in the ureter may cause periodic pains not unlike those of chronic recurrent appendicitis. The pains have the kidney character; they radiate to the external genitals, are located more posteriorly than those of appendicitis, and the overlying abdominal muscles are not rigid. The dragging pain of movable kidney is that of a slight degree of angulation of the pedicle and traction upon the surrounded parts.

Cryptorchism, especially with orchitis or epididymitis, gives abdominal pain, which is low down in the groin, and often accompanied by the sickening sensation peculiar to traumatism of the testicle. *Periureteral abscess* and infections of the *vas deferens* may cause pain and tenderness peculiar to their location. The former disease on the right side is differentiated from appendicitis by the absence of colic. The rigidity is that of localized peritoneal involvement. Attacks of abdominal pain with apparent intestinal symptoms may in some instances be due to renal or ureteral calculus. These pains have been referred in instances to the mid-abdomen or hypochrondrium.

The pain of *peritonitis* is peculiar. It differs in different parts of the abdomen and with different infections. Inflammation of the peritoneum is not in itself painful. The inflamed peritoneum is tender, that is, when it is pressed upon, which means stretched or traumatized, pain is experienced. The chief pain in connection with peritonitis is that which is referable to the intestine. When the peritoneum of the bowel becomes inflamed, the underlying muscle becomes infiltrated with inflammatory products and paralyzed. Localized intestinal paresis and intestinal obstruction are clinically the same, and the pain is due to stretching of the inflamed peritoneum and to colic in the bowel immediately above the paralyzed segment. Thus there are two pains: the tenderness of the inflamed peritoneum and the pain of distended bowel which has not yet fallen into paresis, but which is destined to that fate. The infecting organism influences the pain by the amount of exudate and reaction which it produces. For example, the tubercle bacillus produces so little reaction as to give but slowly developing and slight peritoneal discomfort; the more virulent organisms, such as streptococcus, pyogenes aurens, and colon bacillus, usually produce a rapid paresis of bowel and the pain which accompanies it.

Besides the pains arising from organs in relation to the abdomen, there are referred pains, many of which are of a medical character, but all of which may be confused with surgical diseases. Among these may be mentioned *pneumonia, pleurisy* of the diaphragm, *lead colic* (which may

simulate most any abdominal pain), *spondylitis* (affecting the nerves just as rheumatoid arthritis), and *tabies dorsalis* (with its gastric and intestinal crises and pains about the waist).

Hemorrhoids, sometimes when strangulated, produce an aching abdominal pain. The pain of *strangulated hernia* is that of acute intestinal obstruction. It is often referred to the umbilical region, although the tenderness is always at the site of strangulation. Infected post-peritoneal *lymphatic glands* sometimes give the tenderness and pain incidental to involvement of the peritoneum. *Torsion of the omentum* gives pain and tenderness which are not severe and which usually are associated with the palpable mass.

Sclerosis of the great vessels of the abdomen is not an uncommon cause of constant throbbing pain in old persons. This usually is observed in the iliac vessels or the aorta. It does not produce rigidity of the abdominal wall nor any especial tenderness, but the pain is persistent and intractable. *Aneurysm* of abdominal vessels produces pain by pressure upon nerves in adjacent structures.

Rupture of viscera causes slight pain at the moment rupture of the peritoneum occurs. Following this the pain depends upon the degree and location of the peritonitis which supervenes.

It should be borne in mind that no abdominal pain alone is pathognomonic. All of these pains must be considered along with the accompanying symptoms.

THE INDICATIONS FOR THE MASTOID OPERATION.

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When one takes into consideration the pathological conditions present in purulent inflammation of the mastoid bone; when one keeps in mind the important structures immediately surrounding the middle ear; and when the dire consequences that may follow when operative interference has not been resorted to are fully understood, it becomes obviously important that the surgeon should know exactly when to perform the mastoid operation. However, we cannot well arrive at any conclusion in this matter without a résumé of the symptomalogy of mastoid inflammation.

There is perhaps no region in the human body where surgical procedure is employed which is in such close relation to so many vital points as the middle ear: Above and separated from it by bone, which is often extremely thin, lies the brain and its meningeal coverings. Anteriorly, and in close proximity, the carotid artery. Behind, at no regular situation the sigmoid sinus, extending below in the jugular vein. Internally, the facial nerve and the internal ear.

Here, if anywhere, one's surgical wanderings are truly beset by pitfalls, and here also is initiated the inflammatory process, whose extension into the adjacent parts renders so urgent the need of prompt and thorough operative interference.

It must be borne in mind that in mastoiditis we have to deal with an osteomyelitis of limited area and that while it may at times progress slowly with merely the obliteration of the mastoid cells by sclerosed bone it frequently destroys contiguous structures with fearful rapidity.

The mastoid has aptly been designated the appendix of the head and disease of these two parts are certainly attended by common phenomena. The surgeon who has done any considerable number of operations for appendicitis will frankly confess that in this disease there is no way by which he can with any certainty state the nature and extent of the pathological condition before abdominal section has been performed. In like manner, no surgeon can with any confidence assert what he will find before he has performed a complete mastoid operation.

Some apparently benign cases of mastoiditis present the greatest difficulties in the way of the operator while others seemingly malignant show merely the necessity for free drainage.

In the midst, then, of these uncertain conditions what cardinal signs exist, if any, by which we can be guided in our decision to operate or not to operate?

The temperature is an unreliable guide. Some severe cases accompanied by extensive caries have but slight febrile manifestations, while others with high fever show comparatively little involvement of the mastoid cells.

In two patients, both over 70 years of age, and both having profuse discharge and caries of the inner table, one at no time had a temperature of over 99.4° while in the other the fever rose to 104.6°.

Children are apt to have high fever, as also are those cases characterized by perforation of the floor of the mastoid and the formation of Bezold's abscess.

A case having a history of a discharge from a sinus behind the ear that has persisted for thirty years had a subnormal temperature. On operating

I found the bone of ivory hardness, all cells but the antrum obliterated, and an epidural abscess.

It is my belief that the more rapidly the infection invades the mastoid cells the higher we will find the temperature curve, as such invasion is coincident with the general systemic infection which causes it, while in the more slowly developing cases the individual has in a measure reacted to the infective process in a general way, while the disease became localized in the non-resisting cells of the mastoid bone. The pulse conforms in frequency to the temperature.

Sweating, especially during sleep, generally indicates pus, and in the disease under consideration we have no exception to the rule. The expression of the countenance I do not regard as of any diagnostic value.

Suddenly appearing disturbance of equilibrium with nausea and greatly diminished hearing occurring during the course of a suppuration of the middle ear are symptoms which demand immediate operation, pointing as they do to involvement of the labyrinth, which is usually followed by panotitis, meningitis and death.

When we can diagnose mastoiditis by inspection of the parts involved no other means of diagnosis are necessary. However, one must not confound the glandular swellings so common in the exanthemata for a Bezold abscess. Careful palpation will usually remove all danger of this error.

The discharge from the meatus may be absent or profuse, with all variations between these extremes. But the rapid cessation or diminution of the discharge accompanied by increase of temperature, pain and tenderness strongly indicates involvement of the cells and should put us on our guard at once.

Inspection of the canal, however, is of greatest value, as here we find a sign which when present is of such significance that its association with but one other sign of equal importance warrants us in operating at once. If, after having thoroughly cleansed the external auditory canal, we find just above and posterior to the tympanic ring a sagging or bulging of the membrane lining the bony canal and if this is associated with tenderness over the antrum or the tip of the bone or over the point of emergence of the emissary vein, there is no need of delaying in hopes of more definite evidence. By the time more evidence appears the patient may be in great danger of death.

Some writers express themselves as being skeptical of the value of a bacteriological examination of purulent discharge from the meatus on the grounds that such discharge becomes quickly infected with new pyogenic organisms after having drained from the middle ear. I take issue with them. Of course, if the pus to be examined has been taken from the outer ear or from the side of the neck after it has been exposed for some time to the external atmosphere it is obvious contamination by new bacteria should be expected, but if the patient's external auditory canal be syringed out with a sublimate solution, and cleaned carefully with alcohol, the patient's ear inflated so as to force new pus into the canal and the pus gathered by a sterilized carrier and then sealed until it gets into the hands of the bacteriologist, I fail to see why a bacteriological examination should not be worth as much as or even more than a culture taken from a throat in a case of suspected diphtheria.

The organisms causing suppuration of the middle ear are the staphylococcus, pneumococcus, streptococcus and influenza bacillus, although the infection is commonly mixed.

Although pneumococci cause the greater number of cases, streptococci are by far the more virulent and if these germs are present that alone is held by some to be justification for the operation.

So eminent an authority as Dench regards the blood count as valueless for diagnostic purposes, but I cannot concur in this opinion.

To attempt to diagnose mastoiditis by laboratory methods alone would be fallacious, but as collateral evidence I consider the blood count of much value. The fault with many observers lies, I think, in their interpretation of the blood count. The absence of blood changes is not proof that mastoiditis does not exist, and in this connection we must not forget that in the mastoid the osteomyelitis is quite walled off in the bone, but if we correctly interpret them, certain blood changes are highly significant.

The mere fact that there is an increase in the number of white cells is not of great value, but when the percentage of neutrophiles is raised I believe we have a symptom of importance. Nor am I alone in this opinion. One writer states his conviction that in the presence of a suppuration of the middle ear, if the neutrophiles run as high as 73 per cent. we should operate. However, I would not advise operation without other evidence.

The character of the pain is held by some to be significant, a deep, dull heavy pain associated with indisposition on the part of the patient to move about being regarded as pathognomonic, but I have seen pain of this character in so many other conditions that I give it small weight.

In my view we should get all the evidence pos-

sible, giving each item its due consideration, and then carefully sum up before we hand down our decision. Certainly any procedure which makes for more careful and more thorough investigation should not be lightly regarded.

But the point I wish to raise here is: are we justified in waiting for all of the cardinal signs of mastoiditis before advising the mastoid operation?

Let me ask, is the surgeon justified in waiting for an accumulation of pus in the abdominal cavity or until he is morally certain that his patient has a gangrenous appendix before he advises appendicectomy? Is he not in fact under obligation to operate before these complications have occurred?

There can be no doubt that the mastoid cells are implicated in all acute inflammations of the middle ear, even when there is no discharge of pus from the meatus. Siebenmann says: "A spontaneous evacuation of purulent secretions which may have gathered in the complicated system of cells with narrow exits through a perforation or through the tube is impossible."

It would appear from this that treatment of an inflamed mastoid, other than surgical, would naturally be of doubtful value and, indeed, such is the case. Leeches, ice bags and general systemic treatment are said to be useful, but in such cases as are really benefited by such treatment is our diagnosis of mastoid complication infallible?

However, I do not wish to be understood as decrying all attempts other than surgical to relieve either acute or chronic suppuration of the middle ear. Such treatment is at times of value, and an effort to relieve the patient by these means is always to be made; but a careful reading of the best authorities and one's own experience, if at all extended, will soon make one pessimistic as to what is really accomplished without the surgeon. Improvement or recovery in such cases, I believe, depends more upon the patient's powers of resistance and the severity of the infection than upon the local treatment.

But when by a perfectly safe surgical procedure we can bring about recovery in an inflamed mastoid with the cessation of all purulent discharge, what right have we to continue treating these conditions with peroxide of hydrogen and other archaic mendicaments?

I am sure there are those reading this who were taught that it was an improper thing to operate on appendicitis until it became of the fulminating variety. The viewpoint has changed since then. Neither do we hear of as many deaths from appendicitis. When we have an inflamed ear we have an inflamed mastoid. When we have pus in the middle ear we have pus in the mastoid. How long shall we delay?

The patient's hearing deserves passing consideration. If, having ears to hear with, a man cannot hear, he is crippled to just that extent. And the sooner a mastoid operation is performed the more hearing will be preserved.

I am fully aware that the operator is at times confronted by various considerations, which are prone to bias his judgment as to the time when operative procedure should be initiated, but after reviewing the literature on this subject and in the light of my experience I am forced to believe that the mastoid operation should be performed as soon as mastoiditis can be diagnosed.

Certainly this operation is curative of suppuration of the middle ear without disturbance of audition unless the radical operation is performed, and even then it not infrequently improves the patient's hearing. In cases requiring the radical operation it not only removes the menace of impending mastoiditis but it is a true remedial agent, whereas the medical treatment of this affection is to say the least uncertain in its results, tedious in its duration, beset by many dangers, not only to the patient's welfare, but for the physician's reputation. If error must creep in, it is far safer for all concerned to operate too soon than too late.

BURSITIS ABOUT THE KNEE.

Simple synovitis of the knee, bursitis of the prepatellar sac, and teno synovitis, or of a bursa underlying a tendon, are essentially the same disease. In all there is distention by hypersecretion, due to subacute inflammation, the result, it may be, of overuse or strain; again, all may also be the seat of septic infection through the blood or from without, and the effect is the same pathologically in all. But it has taken us a little longer to realize that just as we find gouty, tuberculous, gonorrheal and so-called pyemic affections of joints, so we may meet with the same in separate bursal structures or tendon sheaths, while the joints remain unaffected. This will sometimes explain the presence in certain obscure toxic blood conditions of painful spots or swellings in situations out of the line of the more commonly named bursae and sheaths, but in which we know that smaller or larger bursae do exist which otherwise rarely attract attention.—ARTHUR E. BARKER in the *British Medical Journal.*

RHINOPHYMA: OPERATIVE TREATMENT.

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Rhinophyma, the extreme form of acne rosacea, is a disease of the nose in which an elephantiasis-like hyperplasia of all of the structures of the skin occurs. The thickening is more marked in some parts than in others, notably in the anterior portion of the alae nasi where large, soft nodules are apt to develop.

The disease in a mild form is not rare, but the extreme stage is not so very common. In the past fifteen years I have seen it but three times.

Mr. F. S., aged 66 years, was operated upon by

Fig. 1.

me at the German Hospital, Brooklyn, October 14, 1909. His condition before the operation is shown in the accompanying photograph (Fig. 1). Four months before, he noticed a small nodule on the right side of the nose and a few weeks later one on the left side. Previous to this there had been some acne rosacea, but not marked. These nodules grew larger and the entire nose became thickened. The thickening was especially marked in the anterior portions of the alae nasi. Operation consisted in removing the larger growths and undermining the skin by a combination of the methods described below so as to restore the normal contour of the nose. Healing was uneventful. The result was all that could be desired (Fig. 2).

Operative Treatment consists in carefully planning out the removal of the nodules and the deeper thickened layer of skin in such a way as to restore the original shape of the nose and leave sufficient thin skin flaps to cover the resulting raw surfaces. It is best to attack the nodules first, incising each nodule about one-quarter way up its circumference or at a sufficient distance from its base to ensure enough skin to cover in the resulting defect. A very sharp, narrow, thin-bladed knife is required. The entire thickness of the skin should not be saved as all the layers of the skin partake in the process; only the superficial layers should be saved. Each nodule is removed in its entirety except for the thin layer of skin at the base. Following their removal the thickened skin of the remainder of the alae nasi and of the rest of the nose, if involved, is incised by means of incisions parallel to the long axis of the nose in the case of all the skin except the alae nasi.

The incisions should be about one-quarter of an

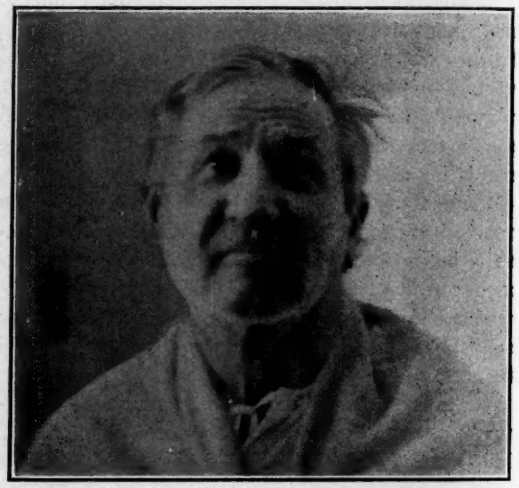

Fig. 2.

inch distant from each other. The deeper portion of each strip thus formed is excised, leaving a very thin superficial layer. Care should be taken not to destroy the attachment at either end of the strip. The incision to remove the thickened portion from the alae nasi should be in the normal line just above this portion of the nose, but should not encroach too much toward the cheek. The flap is turned down and out toward the cheek and all the thickened tissue removed, leaving only the superficial layers of the skin. Up to this point no trimming of the flaps has been done. All bleeding has been controlled, preferably by pressure. An assistant attends to this while the operator works upon another part of the nose, so that when the excision is complete the field is dry. The flaps are now adjusted and any excess at the edges removed with small sharp manicure scissors. Accurate fitting together of these flaps is essential to a final good re-

sult. It will try one's ingenuity at times to secure accurate apposition. The dressing consists of a soft pad of gauze fitted to the nose and secured by adhesive plaster. The dressing should not obstruct the nostrils.

If it is wished to reduce the nose still further in size Dieffenbach advises the excision of V-shaped longitudinal strips of the entire thickness of the skin. It may rarely be necessary in extreme cases to dissect away the entire skin covering of the nose and use Thiersch grafts, or a combination of the methods may be advisable.

301 DEKALB AVENUE.

CERTAIN LIMITATIONS OF LIVING PATHOLOGY.*

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Very radical changes have been made in our conceptions of the meaning of upper abdominal complaints in recent years through the labors of surgery. In large part these changes are traceable to the direct examination of anatomical lesions, the study of living pathology during exploration of the abdomen. To one who is a frequenter of the operating room there seems to be, however, certain limitations of living pathology which need thoughtful consideration. Some of these are no doubt irremediable, but others possible of partial correction at least if anticipated or appreciated during exploration.

Living pathology sometimes leads to erroneous conclusions if only the outer appearances of viscera are studied. The appendix that seems practically normal on the outside, on section is seen to be abnormal and its removal is followed by the disappearance of a definite and long-standing train of symptoms.

Inspection and palpation of the gall-bladder cannot determine the condition of the interior, and the fact that the contents can be emptied through the ducts does not complete the proof that clinical symptoms have not resulted from changes in this organ. One would never think of attempting to decide as to the presence of a low grade pyelitis from mere palpation and inspection of the kidney pelvis or from the demonstration of patency of the ureter. The two structures, however, have a decided similiarity. Without careful exploration of the mucous lining and the contents of the gall-bladder it is difficult to see how we are justified in drawing hard and fast conclusions. Cultures may certainly be made of the aspirated contents without increase of risk, for it must be admitted that it is often unwise to prolong an operation by opening of the gall-bladder unless conditions strongly suggest the necessity. I have on a number of occasions regretted the disinclination of surgeons to complete what seemed to me a justifiable exploration.

In exploration of the duodenum and stomach there are decided limitations to the value of mere inspection as ordinarily carried out. The presence of an indurated ulcer can be determined usually owing to the frequency with which such an affection occurs near the pylorus. Growths and ulcerations of the posterior wall are easily overlooked. There is apt to be hesitancy on the part of the surgeon to open the stomach and examine the inner surface. Clinically it seems that superficial erosions and non-indurating ulcers are far more common than is indicated by the views of present-day surgery. Some of the cases of severe and fatal forms of hemorrhage of the stomach show no marked changes in the external appearance of the stomach. This is, however, a class of cases with which the surgeon is not as familiar as the internist.

The differentiation between an indurated ulcer and a malignant ulceration cannot be made on inspection. The enlargement of surrouding glands may be very slight or absent in either. Mistakes are not infrequently made of calling a benign growth malignant or vice versa. Such is the gravity of the decision in this matter that the limitations of inspection should be realized and operative procedures decided upon rather from the probabilities of the clinical findings and examination of frozen section.

Exploration of the pancreas by surgeons has led to erroneous conclusions in a considerable number of cases in which I have had an interest, and I place little value in the living pathology differentiation between chronic inflammation and early malignancy. It is open to serious question whether, recognizing the limitations of differentiation, the benefit should not always be given to benignancy and operative procedures carried out accordingly.

Living pathology *per se* often leads to error unless the clinical history and findings are carefully considered before and during operation. It is now the custom of some surgeons whenever feasible to explore all of the usual sites of trouble even though

*Read before the Medical Society, County of Kings, April 18, 1911.

one spot is already found. The association of such lesions is known to be common. The practice of exploring the abdomen without previously taking time and trouble to secure all of the clinical facts is a practice to which some surgeons are strangely addicted. By such a course operations sometimes become unnecessarily complex and difficult. The finding of a condition other than the one strongly suggested by the clinical study of the case should make the operator suspicious.

I have in mind two recent operations that cover this point. In the one there was a typical history of peptic ulcer in which at operation no ulcer was found but stones were found in the cystic duct. The patient survived the operation, but the same symptoms of peptic ulcer persist. Probably there was an invisible lesion of the pyloric region associated with pylorospasm from gall-bladder disease. In the other case there was a rather typical gall-bladder history and operation showed nothing but a somewhat small pylorus. Here again the symptoms continue the same as before operation, and we are led to ask whether examination of the inside of the gall-bladder or even drainage was not justified, on the consistency of the clinical history and the relative freedom from danger in such an operative course.

In the case of indurated peptic ulcer the previous study of the case is often more valuable in making a decision as to malignancy than living pathology. During the course of two years I watched a patient, believing that he had a non-malignant indurated ulcer. Operation showed there was an ulcer, but both it and a tumor on the liver were said by the surgeon to be malignant. Anti-syphilitic treatment and perfect recovery have proven how absolute were the limits of exploration and how suspicious we must be, even when made by the surgeon of wide experience and reputation, of an operative diagnosis that contradicts a well-matched clinical picture.

Surgeons and pathologists associated with them have insisted on the frequency with which carcinoma develops on the ulcer base. I think that appearances are deceitful and that this occurs far less frequently than has been claimed. Great frequency is contradicted by the clinical course of these cases which, it is true, look much like new growths engrafted on an ulcer.

Living pathology often gives false impressions as to the relation of anatomical alteration of structure to clinical complaints. The correction of this lies in a careful consideration of operative results. The rest in bed, restricted diet and psychic effect of a stay in the hospital have marked results on many abdominal abnormalities for a period. I think that the surgeon is often deluded by apparent improvements from his skillful labors. We are all of us conscious of our successes, while our neighbor is better acquainted with our mistakes and failures. For one reason or another the patient afflicted with a recurrence of symptoms after a supposed radical cure is apt to seek the advice of another. The internist not infrequently sees patients on whom two to five or more operations have been performed by different surgeons for the relief of a complaint that still persists. There is usually a history of temporary relief after each operation. I have several times seen in the writings of my surgical confrères reports of cures by surgery when the patient was back in my hands or the hands of another internist suffering with the old complaints. This ignorance of final results may be the reason for better statistics for operative treatment of surgical dyspepsias when collected by surgeons than when internists give final results on the cases which have come under their care. In other words, we must most scrupulously interpret living pathology in the light of results.

We are not especially interested in abstract questions concerning lesions, but rather the relation of lesions to morbidity and mortality.

84 REMSEN STREET.

HERNIA OF THE KNEE VS. BURSITIS.

It has been held by some (Baker, Koenig and others) that certain large bursal tumors round the knee are derived from hernial protrusions of the synovial membrane through weak spots in the capsule (so-called Baker's cysts). But we must remember that the views on these structures were put forward at a time when it was considered very imprudent to investigate them by operation, owing to the dangers of sepsis spreading to the knee-joint, and consequently a minute examination of their relations could rarely be made during life, and they were seldom dissected after death. Since then we have learned how to operate on them without risk, and my own experience of a considerable series of cases leads me to the conclusion that the swellings here alluded to are always enlargements of pre-existing bursae and not hernial protrusions due to over-strain. I have never seen anything to support the hernial hypothesis in the case of the knee.—ARTHUR E. BARKER in the *British Medical Journal*.

CANCER.—A STUDY MADE FROM THE POST-MORTEM RECORDS OF THE PHILADELPHIA GENERAL HOSPITAL.

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This study is taken from the records of 8,515 post-mortem examinations made at the Philadelphia General Hospital from September 12, 1867, to September 1, 1909. In this series there were 457 cases of cancer. One patient out of every nineteen posted (18.6) had cancer. There were 404 whites and 40 blacks; the race not being specified in 13 cases. These figures cannot be used as a basis of the question as to the relative frequency of the disease in the two races, as the population of the hospital is made up of a preponderance of the white race. Cancer was found in males in 274 cases and in females in 179 cases; the sex not being specified in 4 cases. This represents a percentage of 60.5 for males and 39.5 for females. If we eliminate the organs peculiar to the sex the percentage for males was 72.5 and for females 27.5.

The frequency as to age was as follows:

Age.	Cases.	Per cent.
20 to 29 years	10	2.2
30 to 39 years	34	7.6
40 to 49 years	93	20.9
50 to 59 years	107	24.0
60 to 69 years	121	27.2
70 to 79 years	67	15.1
80 to 89 years	12	2.7
Over 90 years	1	0.2

Age not specified in 12 cases.

Site.	Cases.	Per cent.	Whites.	Blacks.	Males.	Females.
Adrenals	6	1.32	5	1	4	2
Bladder	8	1.76	8	..	3	5
Bileducts	6	1.32	6	..	5	1
Breast	38	8.36	35	3	2	36
Cecum	5	1.10	4	1	3	1
Colon	6	1.32	6	..	2	4
Duodenum	2	0.44	2	..	2	..
Esophagus	31	6.82	31	..	29	2
Eye	1	0.22	1	..	1	..
Face	7	1.54	7	..	5	2
Gallbladder	11	2.42	11	..	4	7
Ileum	5	1.10	4	..	4	1
Kidneys	2	0.44	1	..	2	..
Larynx	3	0.66	2	..	3	..
Lip	2	0.44	2	..	2	..
Liver	26	5.72	24	2	21	5
Lungs	4	0.88	2	2	2	2
Mediastinum	3	0.66	1	1	3	..
Omentum	1	0.22	1	..	1	..
Orbit	1	0.22	..	..	1	..
Ovaries	2	0.44	2	..	..	2
Pancreas	36	7.92	32	3	23	12
Penis	4	0.88	2	2	4	..
Peritoneum	3	0.66	1	2	..	3
Prostate	9	1.98	7	2	9	..
Rectum	18	3.96	15	2	10	8
Stomach	168	36.96	155	13	123	43
Thyroid	1	0.22	1	..	1	..
Tongue	5	1.10	5	..	5	..
Uterus	40	8.80	30	4	..	40
Vagina	3	0.66	1	2	..	3

Metastases were found in the following organs. The figures denote the number of times metastases were found in the organ named: Adrenals, 18; appendix, 2; axilla, 20; aortic glands, 1; arm, 1; abdominal lymph glands, 1; bronchial lymph nodes, 12; brain, 3; buttocks, 1; bileducts, 3; urinary bladder, 16; bronchus, 5; broad ligaments, 1; cranium, 3; colon, 9; cervical lymph nodes, 4; costal cartileges, 1; spinal cord, 1; clavicular lymph nodes, 2; diaphragm, 5; duodenum, 5; dura mater, 2; epicardium, 1; eye lid, 1; esophagus, 3; epiglottis, 1; frontal bone, 1; femur, 2; fallopian tubes, 1; gastric lymph nodes, 5; gastro-duodenal lymph nodes, 1; gallbladder, 7; gastro-hepatic lymph nodes, 14; heart, 7; humerus, 1; hepatic lymph nodes, 1; inguinal glands, 5; ileum, 1; intestines (small), 8; iliac lymph nodes, 1; jaw, 1; kidneys, 34; liver, 175; lungs, 70; mediastinal lymph nodes, 4; mesentery, 21; mediastinum, 25; meninges, 1; mesenteric lymph nodes, 23; omentum, 14; ovaries, 8; pancreas, 38; pelvis, 3; peritoneal lymph nodes, 28; parotids, 1; palate, 1; pharynx, 1; peritoneum, 27; pericardium, 6; pleura, 30; pelvic lymph nodes, 4; pelvic bones, 1; pancreatic lymph nodes, 5; peribronchial lymph nodes, 4; prostate, 1; retro-peritoneal lymph nodes, 25; ribs, 27; rectum, 7; skin, 3; spleen, 37; sternum, 7; stomach, 17; sublingual lymph nodes, 1; scrotum, 1; submaxillary lymph nodes, 1; trachea, 1; thorax, 3; thyroid, 3; tonsils, 1; thigh, 1; thoracic duct, 1; uterus, 8; ureters, 4; vagina, 9.

The association of tuberculosis with cancer has been frequently noted and variously interpreted. In the series of cases here reported chronic tuberculosis of the lungs (healed foci) was found in 197 times; acute pulmonary tuberculosis, 17 times; tuberculous peritonitis, 5 times,—a total of 219 cases.

It has been stated by Williams that gallstones are found more frequently with cancer than with any other pathological lesion (post-mortem). In this series gallstones were present in 51 of the cases.

In the entire series of autopsies gallstones were found in 507 of the cases. Kidney stones in the cancer cases were found 7 times. The relation of kidney stones to cancer of the kidneys will be shown later under the caption of kidney.

Other neoplasms noted in association with the cancer cases were as follows: fibroid of uterus, 25; fibroid of ovary, 1; broad ligament cyst, 1; ovarian cyst, 4; papilloma of ovary, 2; sarcoma, 1; hypernephroma, 1.

Syphilitic lesions were found in 8 of the cases.

Adrenals. Cases, 6. Whites, 5; blacks, 1; males, 4; females, 2; left, 1; right, 1; both, 1; not specified, 3. Ages, 20, 43, 45, 68, 76. Metastases: Kidney, 1; liver, 2; mediastinal lymph nodes, 1; pancreas, 1. One case showed jaundice. Chronic tuberculosis, 3; acute tuberculosis, 1.

Bladder. Cases, 8. Whites, 8; males, 3; females, 5. Metastases: Epicardium, 1; liver, 2; lungs, 1; omentum, 1; retroperitoneal lymph nodes, 2; pelvis, 1; uterus, 1; ureters, 1; vagina, 1. Ages, 43, 45, 56, 60, 69, 76, 80. Hydro-nephrosis, 2; hydroureters, 1; gallstones, 2; ovarian cyst, 1; chronic tuberculosis, 4.

Bile Ducts. Cases, 6. Whites, 6; males, 5; females, 1. Ages, 36, 53, 59, 65, 72, 79. Metastases: Appendix, 1; colon, 1; diaphragm, 1; gastric lymph nodes, 1; kidneys, 1; liver, 4; lungs, 3; mesentery, 1; pancreas, 1; peritoneal lymph nodes, 1; skin, 1; spleen, 1; chronic tuberculosis, 3; acute tuberculosis, 1. Fistulae were as follows: Gall-bladder to colon, 1; gall-bladder to duodenum, 1. Acute peritonitis was present in one case. Chronic interstitial pancreatitis was present in one case. The site of cancer and the relation of stones to the disease were as follows: Common duct, 3 cases. Stones in common duct in one case; stones in common and cystic ducts and gall-bladder in one case. Cystic duct, 2 cases. Stone in cystic duct in one case. Hepatic duct, 1 case. Stones were not present in this case. In the six cases stones were found in three.

Breast. Cases, 38. Whites, 35; blacks, 3; males, 2; females, 36. Ages, 28, 33, 36, 46, 46, 47, 45, 44, 45, 40, 47, 48, 40, 45, 43, 46, 54, 53, 55, 59, 52, 50, 55, 62, 65, 66, 65, 63, 65, 66, 70, 73, 74, 89. The left breast was the site in 13 cases and the right in 15 cases. Both were involved in 3 cases. Recurrent cancer was noted in 9 of the cases. Metastases: Axilla, 5; adrenals, 3; bronchial lymph nodes, 8; brain, 1; cervical lymph nodes, 1; cranium, 1; costal cartileges, 1; diaphragm, 1; femur (site of fracture), 1; heart, 2; humerus, 1; intestines, 1; hepatic lymph nodes, 1; kidneys, 7; lungs, 19; liver, 18; mediastinum, 8; mesentery, 5; muscles (not specified), 1; neck, 1; ovaries, 1; pericardium, 3; pleura, 20; pelvic lymph nodes, 1; pelvic bones, 1; pancreatic lymph nodes, 2; pancreas, 4; peritoneum, 1; ribs, 7; rectum, 1; sternum, 3; stomach, 2; skin, 1; spleen, 7; trachea, 1; uterus, 4. Gallstones were present in 5 cases; fibroid of uterus in 5; papilloma of ovary in 2. Chronic tuberculosis was noted in 10 cases.

Cecum. Cases, 5. Whites, 4; blacks, 1. Males, 3; females, 1; not specified, 1. Ages, 49, 53, 57, 62, 72. Metastases: Lungs, 1; peritoneum, 1; pleura, 1. Gallstones were present in 1 case and chronic tuberculosis in 2 cases. The colon was perforated in 1 case, the appendix absent in 1 and peritonitis present in 1.

Colon. Cases, 6. Whites, 6. Males, 2; females, 4. Sites: ascending, 2; transverse, 1; sigmoid, 3. Ages, 36, 59, 60, 67, 73, 76. Metastases: liver, 1. Gallstones were present in 1 case; fibroid of uterus in 1; chronic tuberculosis in 3; intestinal obstruction in 1.

Duodenum. Cases, 2. Whites, 2. Males, 2. Ages, 54, 73. Metastases: common duct, 1; liver, 2; pancreas, 2; peribronchial lymph nodes, 1; pleura, 1. Duodenal ulcer was present in 1 case. Jaundice was present in 1 case and chronic tuberculosis in 1.

Esophagus. Cases, 31. Whites, 31. Males, 29; females, 2. Sites: bifurcation of trachea, 5; posterior wall, 2; thyroid cartilege, 1; below cricoid, 2; middle, 1; anterior wall, 2; cardiac end, 6. Ages, 40 to 49, 2 cases; 50 to 59, 11 cases; 60 to 69, 10 cases; 70 to 79, 6 cases. Metastases: aortic glands, 1; adrenals, 1; bronchus, 5; bronchial lymph nodes, 3; gastric lymph nodes, 4; heart, 1; kidneys, 2; liver, 8; lungs, 6; mediastinum, 2; mediastinal lymph nodes, 2; pancreas, 3; peribronchial lymph nodes, 1; stomach, 6; thorax, 1. Gallstones were present in 3 cases; chronic tuberculosis in 15; acute tuberculosis in 1. Emaciation was noted in 8 of the cases. Ulcer of the esophagus was present in one case. The complications noted were: abscess of lung, 1; gangrene of bronchus, 1; perforation to trachea, 2.

Eye. Case, 1. White, 1. Male, 1. Age, 48. Recurrent. Metastases: dura mater, 1; liver, 1. Caries of orbital plate.

Face. Cases, 7. Whites, 7. Males, 5; females, 2. Ages, 33, 54, 58, 61, 74, 82, 80. Sites: right cheek, 1; eye lid, 1; nose, 1; rodent ulcer of cheek, 1. Metastases: frontal bone, 1; dura, 1; brain, 1; liver, 1. Chronic tuberculosis was present in 3 cases and kidney stone in 1.

Gall-Bladder. Cases, 11. Whites, 11. Males, 4; females, 7. Ages, 48, 59, 65, 65, 60, 60, 63, 68, 79, 80, 82. Metastases: adrenals, 1; gastro-hepatic lymph nodes, 1; kidneys, 1; liver, 7; omentum, 1; pancreatic lymph nodes, 1; retroperitoneal lymph nodes, 1; spleen, 1. Emaciation was noted in 1 case and adiposa dolorosa in 1. Acute tuberculosis was present in 2 cases; chronic tuberculosis in 4 and tubercular peritonitis in 2. Fibroid of the uterus was noted in 2 cases and ovarian cyst in 1. Kidney stones were present in one case. Gallstones were present in 8 of the 11 cases. They were found as follows: gall-bladder, 4 cases; common duct and gall-bladder, 2; cystic duct and gall-bladder, 1; cystic duct, 1.

Ileum. Cases, 5. Whites, 4; not specified, 1; males, 4; females, 1. Ages, 30, 47, 55, 55, 61. Metastases: colon, 1; liver, 2; mesenteric lymph nodes, 1. Ulcer of the ileum was present in 1 case. Chronic appendicitis was noted once. Acute tuberculosis was present in 2 cases.

Kidneys. Cases, 2. Whites, 1; not specified, 1; males, 2. Site: Right kidney, 1; left kidney, 1. Ages, 68, 70. Metastases, none. Kidney stones, none. Chronic tuberculosis, 1. Kidney stones were found in 7 cases of the entire series of cancer patients, but not once in association with cancer of the kidneys.

Larynx. Cases, 3. Whites, 2; not specified, 1; males, 3. Ages, 37, 46, 56. Metastases, none. Stenosis of the larynx was present in one case. Complications, gall-stones, 2; chronic tuberculosis, 1; sarcoma of liver, 1; adenoma of thyroid, 1.

Lips. Cases, 2. Whites, 2; males, 2. Site: Lower lip, 2. Ages, 38, 45. Metastases, jaw, 1. Chronic tuberculosis was present in one case.

Liver. Cases, 26. Whites, 24; blacks, 2; males, 21; females, 5. Ages, between 20 and 29, 3 cases; 30 to 39, 2 cases; 40 to 49, 5 cases; 50 to 59, 10 cases; 60 to 69, 3 cases; 70 to 79, 3 cases. Metastases, gastro-hepatic lymph nodes, 2; gall-bladder, 1; kidneys, 2; lungs, 11; mediastinum, 3; mesentery, 1; mesenteric lymph nodes, 4; pancreas, 3; pericardium, 3; peribronchial lymph nodes, 1; peritoneum, 2; pleura, 2; retro-peritoneal lymph nodes, 7; spleen, 3; stomach, 2; thyroid, 1. The following associated lesions were noted: Gall-stones, 4; jaundice, 10; cholangitis, 1; ascites, 3; myoma of uterus, 2; chronic tuberculosis, 10.

Lungs. Cases, 4. Whites, 2; blacks, 2; males, 2; females, 2. Site: Right, 1; both, 1; not specified, 2. Ages, 30, 34, 40, 65. Metastases, adrenals, 1; bronchial lymph nodes, 1; bladder, 1; liver, 2; opposite lung, 1; pancreas, 1; mediastinal lymph nodes, 1; rectum, 1; ureter, 1; acute tuberculosis, 1; chronic tuberculosis, 2; fibroid of uterus, 2.

Mediastinum. Cases, 3. Whites, 1; blacks, 1; not specified, 1; males, 3. Ages, 35, 40, 49. Metastases, liver, 2; lungs, 1; kidney, 1; ribs, 1; spleen, 1; sternum, 1; chronic tuberculosis, 2.

Omentum. Case, 1. White, 1; male, 1. Age, 59.

Orbit. Case, 1. Race not specified. Male, 1. Age, 56.

Ovaries. Cases, 2. Whites, 2; females, 2. Site: Left, 1; not specified, 1. Ages, 43, 47. Metastases, gastro-hepatic lymph nodes, 1; liver, 1; mesentery, 1; peritoneum, 1; peritoneal lymph nodes, 1; omentum, 1; spleen, 1; stomach, 1; chronic tuberculosis, 1; fibroid of uterus, 1; papilloma of ovary, 1.

Penis. Cases, 4. Whites, 2; blacks, 2; males, 4. Ages, 40, 48, 50, 66. Metastases, inguinal glands, 3; lungs, 1; scrotum, 1; spleen, 1; recurrent, 1; chronic tuberculosis, 2.

Peritoneum. Cases, 3. Whites, 1; blacks, 2; females, 3. Ages, 28, 61, 80. Metastases, liver, 1; chronic tuberculosis, 1; fibroid of uterus, 2.

Pancreas. Cases, 36. Whites, 32; blacks, 3; not specified, 1; males, 23; females, 12; not specified, 1. Ages, 20 to 29, 1; 30 to 39, 2; 40 to 49, 4; 50 to 59, 10; 60 to 69, 11; 70 to 79, 8. Site: Head of pancreas, 22; body, 5; tail, 2; entire gland, 1; not specified, 6. Metastases, abdominal lymph nodes, 1; adrenals, 4; bladder (urinary), 1; duodneum, 2; diaphragm, 1; femur, 1; gall-bladder, 3; heart, 2; gastro-hepatic lymph nodes, 1; intestines, 3; kidneys, 3; liver, 25; lungs, 6; mediastinum, 1; mesenteric lymph nodes, 9; omentum, 5; ovary, 1; peritoneum, 6; pleura, 2; retroperitoneal lymph nodes, 11; ribs, 1; spleen, 10; stomach, 5; skull, 1; thyroid, 2; transverse colon, 2; thoracic lymph nodes, 2. Jaundice was present in 5 cases and ascites in 2. Gall-stones were present 5 times, distributed as follows: Common duct, 3; hepatic duct, 1; cystic duct, 1. Stenosis of common duct was found in 2 cases; fibroid of uterus, 1; pigmented skin, 1; acute tuberculosis, 5; chronic tuberculosis, 14.

Prostate. Cases, 9. Whites, 7; blacks, 2; males, 9. Ages, 42, 58, 59, 61, 61, 63, 65, 70, 78. Metastases, adrenals, 1; bladder, 2; brain, 1; cerebral meninges, 1; kidney, 2; liver, 4; iliac lymph nodes, 1; mesentery, 1; retroperitoneal lymph nodes, 1; spinal cord, 1; stomach, 1; ureters, 1. Bladder stone was present in one case; hydro-ureter, 2 cases; hydro-nephrosis, 2; vesico-rectal fistula, 1;

pyelonephrosis, 1; tuberculosis of the kidney in 1 case and chronic tuberculosis of lungs, 5.

Rectum. Cases, 18. Whites, 15; blacks, 2; not specified, 1; males, 10; females, 8. Ages, 33, 37, 39, 49, 50, 50, 52, 57, 60, 61, 62, 62, 64, 66, 69, 74, 80, 81. Metastases, adrenals, 1; bladder, 1; kidneys, 3; liver, 9; lungs, 3; mesenteric lymph nodes, 1; omental lymph nodes, 1; peritoneum, 1; peritoneal lymph nodes, 1; ovary, 1; spleen, 1; vagina, 1. Gall-stones were present in 3 cases and kidney stones in 1. Rodent ulcer of groin was found in 1 case; myoma of uterus, 2; obesity, 1; chronic tuberculosis, 8; recto-vaginal fistula, 1.

Stomach. Cases, 168. Whites, 155; blacks, 13; males, 123; females, 43; not specified, 2. Ages, 20 to 29, 1; 30 to 39, 10; 40 to 49, 32; 50 to 59, 36; 60 to 69, 51; 70 to 79, 32; 80 to 89, 3; over 90, 1. Sites: Posterior wall, 1; pylorus, 108; lesser curvature, 11; anterior wall, 1; cardia, 17; greater curvature, 4; entire organ, 26. Metastases, appendix, 1; axillary lymph nodes, 1; adrenals, 6; arm, 1; bile ducts, 2; bladder, 2; colon, 5; cranium, 1; diaphragm, 2; duodenum, 2; eyelid, 1; esophagus, 2; gastro-hepatic lymph nodes, 9; gall-bladder, 2; heart, 2; intestines, 3; ileum, 1; kidneys, 9; liver, 78; lungs, 14; mediastinum, 7; mesenteric lymph nodes, 9; mesentery, 8; omentum, 12; ovaries, 1; pancreas, 23; peritoneum, 11; peritoneal lymph nodes, 25; peribronchial lymph nodes, 1; gastro-duodenal lymph nodes, 2; prostate, 1; pleura, 4; pancreatic lymph nodes, 1; ribs, 17; retroperitoneal lymph nodes, 1; spleen, 11; sternum, 2; subclavicular lymph nodes, 1; thigh, 1; uterus, 1; skin, 1. Ulcer of the stomach was present in 10 of the cases. The stomach showed peptic ulcer in 1 case and polypoid gastritis in 1 case. Perforation of the stomach was present in 7 of the cases; dilatation of stomach in 3; gastro-duodenal fistula in 2; hour-glass contraction in 1; peritonitis in 9; jaundice in 1.

Gall-stones were present in 7 cases; kidney stones, 3; hypernephroma, 1; fibroid of uterus, 4; fibroma of ovary, 1; ascites, 2; chylous ascites, 1; acute tuberculosis, 4; chronic tuberculosis, 95.

Thyroid Gland. Case, 1. White, 1; male, 1. Age, 58. Metastases to cervical glands.

Tongue. Cases, 5. White, 5; males, 5: Sites: Right side, 1; under surface, 1. Ages, 49, 60, 60, 61, 72. Metastases, axillary lymph nodes, 1; cervical lymph nodes, 2; lung, 1; parotid, 1; palate, 1; pharynx, 1; sublingual lymph nodes, 1; submaxillary lymph nodes, 1; tonsil, 1; epiglottis, 1; chronic tuberculosis, 2.

Uterus. Cases, 40. Whites, 30; blacks, 4; not specified, 6; females, 40. Sites: Cervix, 26; body, 11. Ages, 20 to 29, 2; 30 to 39, 6; 40 to 49, 17; 50 to 59, 9; 60 to 69, 4. Metastases, broad ligaments, 1; body of uterus, 2; bladder, 8; esophagus, 1; buttocks, 1; intestines, 1; inguinal glands, 2; kidney, 2; liver, 6; lungs, 2; mesentery, 3; omentum, 2; ovaries, 3; peritoneum, 4; pancreatic lymph nodes, 1; pelvis, 2; pelvic lymph nodes, 3; rectum, 4; retroperitoneal lymph nodes, 2; stomach, 1; thoracic duct, 1; subclavian lymph nodes, 1; ureters, 1; vagina, 7; fallopian tube, 1. Fistulae: Recto-uterine, 1; recto-vaginal, 1; vesico-vaginal, 4; vesico-uterine, 1; hydro-ureter, 3; hydro-nephrosis, 13. The uterus was retrodisplaced in one case and a polyp was present in one case. Gall-stones were present in 2 cases; kidney stones in 1; peritonitis in 7; broad ligament cyst in 1; ovarian cyst in 2; chronic tuberculosis in 10.

Vagina. Cases, 3. Whites, 1; blacks, 2; females, 3. Ages, 55, 63, 65. Metastases, bladder, 1; ovaries, 1; rectum, 1; fibroid of uterus, 1.

113 SOUTH TWENTIETH STREET.

SURGERY IN NEURASTHENIA.

Where surgery is necessary in a person with true neurasthenia, we ought to remember that this disorder is a chronic one from the first time it was discovered by the physician, and that in arranging for surgery a greater length of time ought to be taken for preparation; and that the patient should be told that the improvement in the nervous symptoms depend fully as much upon the after-treatment of the patient as upon the surgery itself. This would mean that the patient would stay much longer in the hospital than heretofore was thought necessary after similar operations.—WILLIS E. FORD in the *N. Y. State Journal of Medicine.*

PREPARATION FOR ANAL OPERATIONS.

In hemorrhoids, fissure, ulcer, fistula, and other ailments where the wound is left open and drained, I have my patients prepared in the following way: They are requested not to take any laxative or cathartic the night before and large enemata are never administered, but just before the patient is placed upon the table they are given a small rectal injection of from four to six ounces of water and glycerin which serves to excite peristalsis and cause the patient to empty the rectum. When this plan is followed I am rarely annoyed by a discharge of the feces during the operation because they are not soft nor is there any retained water to come away. —SAMUEL G. GANT in the *N. Y. Medical Journal.*

ON THE EARLY DIAGNOSIS OF CANCER OF THE SKIN.*

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However it may be with cancer of the internal organs, in the skin the early diagnosis of malignant degeneration is the one vitally important point. For it means, in the great majority of cases, prompt, radical and permanent cure. In glandular carcinoma, on the other hand, the earliest possible diagnosis may be unavoidably uncertain, may necessitate most serious operative procedures, and may, even with their aid, lead merely to mitigation of suffering and brief prolongation of life. With the advantage of having an organ spread out before us, accessible in every part to sight and touch as well as to microscopic investigation, the diagnosis of malignancy can and should be made in the skin at a stage when similar changes in an internal organ would give rise to no symptoms at all.

But this is not the whole story. Knowing, as we very well do, the conditions under which skin cancers are prone to develop, we should be prepared for them, and take our remedial measures before the cancer has really appeared. Knowing, for instance, the tendency of the senile skin to develop degenerative processes, any deviation from the normal course of senescence should awaken our suspicions and set our therapeusis going. And by a senile skin I mean not necessarily the integument of an old individual; I mean a skin that is atrophic, thin, wrinkled, and pigmented, though its owner may be comparatively youthful. Sebaceous or senile warts, insignificant flat papules covered with brownish greasy scales, are common in such skins, and are benign, and may remain so for years. But let one of them begin to make its existence felt by itching or irritation, so that the bearer commences to remove the constantly reaccumulating mass with his finger nails, and the foundation for a malignant neoplasm is laid, or it has already made its insignificant beginning. Hence the rule to remove these senile excrescences radically whenever it is practicable; and certainly to do so with every one that shows any signs of irritation or any departure from its ordinary indolent and quiescent course.

Certain other benign tumors, congenital and acquired, are notoriously liable to undergo malignant degeneration with advancing years. Such are the pigmented nevi, especially those that are highly chromatized. On the body they usually remain innocent to the end; but on the exposed parts, on the face and hands, their course is often a different one, and it is good practice to remove them, whenever possible, before they have any chance to develop their evil possibilities.

The obstinate fissures of the lips and nostrils that occur in certain individuals are legitimate objects of solicitude when the persons affected with them have reached or passed middle age. They sometimes become the seat of malignant degeneration, and they should be treated and cured before they have an opportunity to do so.

Since, however, as is so frequently the case, we are not given the occasion to remove the precancerous lesions, it is lucky for us that cancer of the skin is always slow of growth, and almost always perfectly characteristic in appearance. A moment's consideration of the disease process in question will show why this must be so. Cancer of the skin is essentially an abnormal proliferation of the deeper layers of the epithelial elements of that tissue; and these are covered only by the superficial flattened cells of the outer layers of the same structure. External resistance to the growing mass being at first slighter than that of the deeper tissues, there is always a tumor, though it may be extremely small. This consists of a mass of non-vascularized white epithelial cells, which shine with a mother-of-pearl "glance" through the normal outer layers. It is also distinctly harder than the normal epithelium, being larger in amount and more closely packed. As the mass increases and presses more on the outer layers, it grows into the depths to some extent, and elevates the deeper seated and vessel-containing layers. When, therefore, the epithelial accumulation has attained a certain size, minute arborescent bloodvessels can be seen on close inspection with the naked eye, or by the help of a magnifying glass, coursing up over the edges of the tumor. And on this peculiar hard white epithelial cell accumulation with minute bloodvessels running over its edges, the diagnosis of cancer of the skin in its early stage can always be made.

Later on, when the new and non-vascular cell mass has attained so large a size that cell nutrition in the center fails, and the tumor breaks down, and an ulceration results, the advancing margins, being composed of the same elements under the same conditions, will have the same appearance. No matter how large the ulceration may become, so long as the skin alone is involved, the edges of the

*Read at a symposium on the Early Diagnosis of Carcinoma, East Side Physicians' Association, February, 23, 1911.

lesions will show the hard pearly masses of epithelium and the arborescent vessels. The picture may be apparently altered in certain cases, but only to careless and superficial observation. Thus in the very common fungating form of epithelioma, in which the tumor is apparently a soft, raspberry mass, removal of the granulation tissue-like mass with the curette, or even merely lifting it aside with a probe, will reveal the hard, white infiltrated circumference of the lesion.

When the deeper tissues are involved, or when a pyogenic infection has invaded the tumor, or when local destructive measures have been employed, the outlines of the picture may be blurred; though even here the practiced eye will discover somewhere at the margins the characteristic features of cancer of the skin. Such cases, however, hardly come into consideration here, where we are dealing with the *early* diagnosis of cancer of the skin.

154 West 77th Street.

Sprain vs. Fracture.

Sprains may simulate fractures in many details. There is rarely a spurious crepitus to be felt during the first hours, but if the physician will wait twenty-four hours for his final diagnosis he will find the spurious crepitus to have disappeared. The typical deep brawny swelling and the bloody discoloration always present in fracture will usually be lacking, and the *x*-ray will show no bony changes. Sprains complicated with the tearing off of the outer lamella of the bone will give the same swelling and discoloration as an ordinary fracture.—Walter G. Stern in *The Ohio State Medical Journal.*

Preparation of the Bowel for Anal Operations.

Except when extensive operations are to be done such as excision, resection, or when sutures are to be employed, it is not necessary to have the patient go through an elaborate preparation. The operative field is more often repeatedly soiled where the patient has been given a strong cathartic and one or more copious enemata than when less attention is given the patient, because the medicine liquifies the feces and the colonic injection is frequently retained in the sigmoid flexure to be discharged one or more times while the patient is upon the operating table, much to the disgust of the surgeon.—Samuel G. Gant in the *N. Y. Medical Journal.*

ACUTE ANGULATION AND FLEXURE OF THE SIGMOID A CAUSATIVE FACTOR IN EPILEPSY.

A FURTHER REPORT OF TEN CASES WITH THREE RECOVERIES.

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At the Washington State Medical Association meeting in 1910, I reported eight private cases of epilepsy and twenty-three cases examined in the asylum in which I found the condition of acute angulation and flexure at the recto-sigmoidal juncture. I assigned these affections as causative factors in the production of the disease. Since then I have had two additional private cases and examined three asylum cases, making a total of ten private and twenty-six asylum cases. In the whole number of cases the same conditions in varying degrees were present excepting in one asylum case. A remarkable feature in connection with this case was that the abdominal examination excluded the possibility of the internal trouble being present. This prediction was verified by one of the assistants in the presence of the superintendent and the other assistants. In this particular case the epilepsy was produced by a depressed fracture. This was the first case of a normal condition of the rectum and sigmoid found at the asylum. There was no angulation or impaction whatsoever; no gaseous distention of the cecum or history of persistent and obstinate constipation. Dr. Wilt, the assistant, remarked to me that this was the first normal condition he had met since a systematic routine of examinations had been inaugurated.

Of the ten private cases only four persisted in the treatment for the recto-sigmoidal difficulties. Of these four, three are practically relieved of the epilepsy as well as the recto-sigmoidal trouble. Case 1 has had but one convulsion in twenty-four months and none in the past twelve months. Case 2 has remained free from convulsions twenty-two months, and Case 3 for eleven and a half months. The fourth case who persisted in the treatment for an acute angulation, thickening and ulceration at the recto-sigmoidal juncture was made worse while taking treatment. The convulsions occurred three or four times per month, whereas before the convulsions were never over two per month. After the acute angulation, ulceration, hypertrophy and the prolapsed and impacted sigmoid were relieved the convulsions ceased. He has had no recurrence for more than two months. The fact that the frequency of the convulsions was increased during

active treatment is the most convincing evidence that the cerebro-spinal irritation was caused by the recto-sigmoidal trouble. I exclude this case from the series because of the shortness of time since the difficulties were overcome.

If there is any virtue at all in the claim that the angulations and flexures are causative factors I am firmly convinced that it is applicable only to those cases where the epilepsy has been acquired in later years or not until irregular habits of living have been more or less fairly established.

If the knowledge is kept in mind that the recto-sigmoidal region is supplied by both the cerebro-spinal center through the sacral plexus, and the great sympathetic, this conclusion is inevitable if these regions are grossly irritated. All who have the recto-sigmoidal trouble, however, do not have epilepsy. If the further fact also is taken into consideration that all of these cases came for the relief of an obstinate and persistent constipation, the distress and discomfort of flatulence, and restlessness, and that upon the relief of these they secured relief from the greater scourge, the results seem to me to be more than a mere accident.

I have in my possession private communications on the subject from several of the most noted rectal specialists and alienists of this country, all of whom, without exception, claim that there is good and sufficient reason for the conclusions.

I report briefly and in detail the three cases which I believe to be freed from their convulsions and who, I believe, will remain free so long as there is no return of the original recto-sigmoidal difficulty. The seven cases not mentioned were improved to a greater or less extent while taking treatment, but were indifferent to advice and spasmodic in the treatment. One patient who had epileptic seizures almost daily for nineteen years, missed the seizures three days, but because of the expense involved ceased treatment. In this case there is a fractured and inflamed coccyx, the injury being sustained the day of the first seizure, nineteen years ago.

Case 1: A. S.; female; age 29; married; one child; had always been healthy and rugged until seven years ago, when she had her first epileptic seizure. However, upon conversing with her mother I learned that she had had "fainting spells" since she was thirteen. Was always constipated, which has increased very materially in the last few years. There was a history of having taken increasing doses of purgatives and with decreasing results. Very nervous and restless. Patient consulted me March 26, 1909, because repeated doses of purgatives and enemas failed to secure evacuations.

Examination: Palpation of the abdomen, elicited dullness extending from the left of the bladder deep into the left groin and extending up to the splenic flexure; the transverse and ascending colon and cecum were much enlarged and distended; digital examination revealed an impacted rectum; an angulation and tenderness at the recto-sigmoidal juncture and a retroverted uterus.

Sigmoidoscopic Examination: At the seat of angulation the mucous membrane was edematous, purplish in hue, thickened, irritable, would bleed upon touching, and, when the rectum was entirely empty it was utterly impossible to introduce the instrument beyond the point of angulation; beyond the angulation the sigmoid was prolapsed and impacted, and was partially held in the prolapsed position by light adhesions. The relief of these was overcome only by a considerable amount of force,

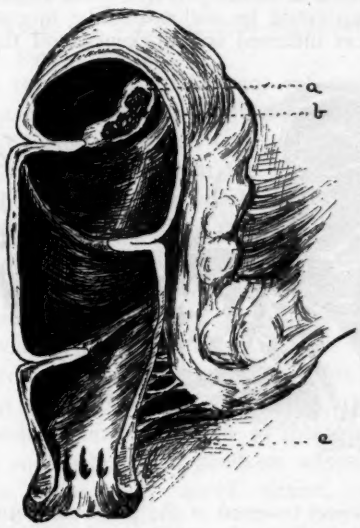

Fig. 1.

inflation and other means, and the persistent use of enemas of a sedative nature. Treatment was continued for a period of about two months.

Results: She had no more convulsions from the first emptying of the bowel until thirteen months after. She attributed that seizure to the fact that that she had had no bowel movements for the three previous days. Since then she has been cautious under all circumstances and as a consequence is free from convulsions and bowel difficulties.

Case 2: F. H. W.; male; German; age 30; had always been well until 1901, when he had three very hard convulsions within a period of two hours, during the last of which I was present; always a hasty and inordinate eater; history of increasing and obstinate constipation; history of having taken all kinds of purges, laxatives and herbs. Examination at that time revealed an overloaded bowel and a very much distended abdomen. From that date, for eight years, he had from one to four convulsions each month to as many as six in one day.

Examination: May 18, 1909, patient came to me for the relief of the bowel, from which he had not had an evacuation for five days. On the day, previously to coming to me, he had had six convulsions.

Examination by palpation of the abdomen disclosed about the same bowel condition as in Case 1, except that the conditions were exaggerated.

Sigmoidoscopic Examination: After emptying the rectum and the sigmoid by enemas, an examination by the sigmoidoscope revealed an acute angulation and flexure (Fig. 1b) at the recto-sigmoidal juncture together with a large ulcer (Fig. 1a) just below the point of angulation. Upon attempting to introduce the sigmoidoscope by the aid of inflation it was impossible to raise the prolapsed loop of the sigmoid. By palpation through the rectal wall the induration of plastic adhesions (Fig. 1c) and of the prolapsed and impacted sigmoid loop could be outlined. The mucous membrane was inflamed and thickened and the caliber

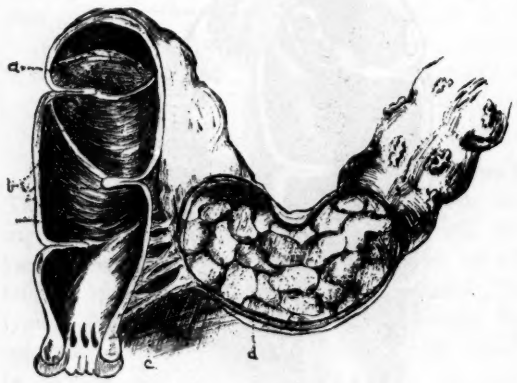

Fig. 2.

of the bowel lessened at the point of angulation.

Results: Since the cauterization of the ulcer on the subsequent day and the emptying of the bowel at the time of the first visit, he has not had a single convulsion, although the constipation persisted for some months after the ulceration, angulation and adhesions were relieved.

Case 3: M. E.; male; age 29; had been well until fifteen years of age, when his mother began to notice that her son acted "queer"; would have "queer spells" almost every night. After a time these spells partook of the nature of laughing spells, and later they assumed the form of the so-called circular epilepsy. He would stand on the floor, laugh and clap his hands for a moment, then run about the room in a circle. During the last few years the epilepsy assumed the form of severe convulsions with a complete loss of consciousness and all the other disagreeable features of the dreadful malady. He gave the history of having two or three convulsions a month to as many in a week. Some months he would have none. At one time he went for nine months without them. He gave a history of always being an inordinate eater and was particularly fond of all things sweet. He also gave a history of increasing and persistent constipation; distressing distention of the abdomen, restlessness at night; more or less distress after eating. He felt unrelieved after a bowel movement and had the distressing feeling that there was more to come away, but the more effort exerted the worse the condition felt.

Examination: March 7, 1910, patient came to me for the relief of the distress in the abdomen and for a very obstinate constipated condition of the bowel, he having had nothing but a very scanty movement in ten days. Palpation of the abdomen disclosed in the left groin a large, hard, nodular, dull and tender mass which extended along the course of the sigmoid and descending colon to the splenic flexure; the transverse and ascending colon and the cecum were pronounecd tympanitic. Digital examination per rectum disclosed an impacted rectum, and by palpation, through the posterior and left rectal wall, a prolapsed, impacted sigmoid; the finger could not be introduced beyond the recto-sigmoidal juncture.

Sigmoidoscopic Examination: After an enema the sigmoidoscope revealed a very acute angle (Fig. 2a) beyond which it was impossible to reach with the instrument; beyond the angulation could be seen an outline of a complete fecal impaction (Fig. 2d) which had to be removed piecemeal with a small scoop. The mucous membrane was congested and thickened; there was a partial invagination of the sigmoid into the rectum and a thickened condition of the wall at the point of invagination.

After four or five days' use of enemas of warm water and oil the sigmoid was fairly well emptied. Repeated and persistent efforts to raise the sigmoid and correct the angulation failed. Further and later examinations revealed the fact that the sigmoid was bound down by plastic adhesions (Fig. 2c). It was only after three months of persistent effort that the sigmoidoscope was finally introduced into the sigmoid and that organ raised into place. Fig 2 represents fairly well the conditions as they existed.

Results: Under sedative and other appropriate treatment the affections were relieved and, with the exception of a slight arm jerk, he has not had a single convulsion from that date to the present, March 9, 1911.

I have seen each of the above patients within the last few days and all are in excellent health and feel confident that their relief is permanent.

Indications for Operation in Peptic Ulcer.

(1) All cases of chronic ulcer that resist the efforts of the skilled internist—that is, those that remain uncured after a persistent effort of, sty, eight or ten weeks.

(2) Seemingly cured cases that recur again and again.—M. C. McGannon in *The Southern Practitioner*.

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WALTER M. BRICKNER, M.D., Editor

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MURPHY'S TREATMENT OF JOINT SUPPURATION.

Six years ago John B. Murphy published the results of his studies in the operative treatment of ankylosis.* Briefly stated, the operation for bony-ankylosis which these studies developed consists in a sufficient exsection of contracted capsular-ligamentous tissue to provide free movability, and the interposition between the bone surfaces, after separation, of a fatty-fascia or fat-muscle flap. Pressure on this fatty tissue develops an hygroma —or bursa—and thus provides a new joint.

"Bursa formation is due to the absorption of fat from fatty tissue and the coalescence of the small fat capsules with an increase or hyperplasia of the connective tissue and its degeneration with the development of collagen. It is the solution or liquefaction of the collagen in the center that forms . . . the fluid in the cavity of the bursa. The liquid is a liquified collagen, not a secretion from the surface of the cavity (serous) as Virchow taught. . . . The cells lining the newly developed cavity appear as flattened endothelial cells; these are really transformed connective tissue cells."

It was the recognition of this as the pathological condition that exists in the non-union of fractures of the long bones where there is interposition of soft parts and a "false joint," and in the correct interpretation of joint embryology, that led Murphy to this operation.

"There are the following stages in the formation of a joint cavity: 1. Existence of an embryonic connective tissue with closely packed cells. 2. The production of fusiform and stellate cells whose prolongations anastomose. 3. Elaboration of mucoid substance in their meshes. 4. Atrophy of the cellular elements and their prolongations. The joint cavity succeeds the evolution of this embryonal connective tissue, which, in place of producing cartilage or bundles of areolar tissue, elaborates the mucoid substance, giving rise to the first synovial fluid."

Thus soundly based on embryologic interpretation and an astute clinical-pathological observations, evolved by careful animal experimentation, demontrated by actual results in the human being, and presented with completely elaborated technics for the various joints, Murphy's arthroplasty is, we believe, the most brilliantly conceived and the most important contribution yet made to the surgery of ankylosis; and it attracts the most respectful attention to the results of his studies in another field of joint work, viz., the treatment—to prevent ankylosis—of joint suppuration.

These results Murphy has not yet published*; but his management of pyarthrosis is so different from that followed—usually with ankylosis as a result—by most surgeons that we are very glad to present here, with his approval, a brief statement of Murphy's method. Two things he emphasizes: First, bony ankylosis following suppuration does not occupy the entire joint surface but will be found in a limited area where it arises from destruction of synovial tissue by *pressure.* Hence it is important to avoid this by keeping the joint surfaces separated by extension apparatus from the very outset. Second, admission of air to the joint cavity destroys endothelium and produces adhesions and ankylosis. Therefore, avoid drains, drainage tubes and large incisions.

Murphy treats pyarthroses by repeated aspiration and injection of two per cent. formaline in glycerine, and continued extension.

The following is his technic:

An ordinary exploring needle as large as a darning needle suffices for the injection. It must be attached, however, to a very strong syringe. Otherwise the material will leap from the piston or side of the syringe, and it will break, as it is difficult to force glycerine through a needle. The solution should be a 2 per cent. of formaline, the commercial article, in 98 per cent. of glycerine. It should be mixed at least 24 hours before it is used, and should be shaken frequently in the meantime. (It requires no other sterilization than the 24-hour admixture.)

The quantity injected should be two drams in the ankle and four drams in the knee. Have a firm

*Ankylosis. Arthroplasty—Clinical and Experimental. *Journal of the American Medical Association*, May 20, 27, June 3, 1905.

*See, however, article by Clarence L. Paley in *Northwest Medicine*, March, 1911, abstracted in the AMERICAN JOURNAL OF SURGERY, June, 1911, page 207.

Buck's extension ready for application at the time the injection is made, and a weight of from 15 to 20 pounds should be carried continuously for three or four weeks after the injection is first given.

The injection should be repeated every week for at least three injections. If the pain is too great, morphine may be given for the first two days, but none should be given after that. Ice applications or hot applications to the joints for a few days after the operation are very agreeable to the patient and conducive to the best results.

For the knee, the needle should be passed in an inch above the patella, and then down through the tissues to the side and finally into the joint. No air should be admitted, and the fluid in the joint should be fairly well removed before the injection is given—through the same needle and without removing it after having aspirated. After the injection is given the joint should be put through motion for about two minutes, so as to disseminate the fluid.

The injection should be given under an anesthetic; it cannot be well done otherwise.

The extension must be sufficient to prevent contraction of the articular surfaces.

Even in the face of the most acute and virulent type of joint suppuration, Murphy eschews free incisions and follows the plan above outlined. When the formaline-glycerine injections fail to afford a cure he injects a small amount of pure Venice turpentine. Tuberculous joint suppuration, if we have understood Murphy, is not amenable to this treatment.

Those who would adopt Murphy's method must bear in mind that care in the technic of aspiration, injection, dissemination of the fluid, extension and after-treatment is essential to success. Too often a method is condemned because its application has not been understood or its details have been neglected.

W. M. B.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

More gratifying than surprising was the success of the first American clinical surgical congress, which was initiated and organized by *Surgery, Gynecology and Obstetrics*. The habit of visiting from clinic to clinic has been growing in this country, and its advantages for interchange of ideas and methods have been increasing. The first session of the Clinical Congress of Surgeons of North America, held in Chicago, November 7 to 19, 1910, the outgrowth of this habit, was a tryout of the doctrine that in teaching medicine demonstrating is better than describing, and in learning seeing is better than hearing.

A permanent organization developed from that meeting, Dr. Albert J. Ochsner was made first president and, subsequently, Philadelphia was selected for the next clinical congress, which will be held November 7 to 19, inclusive. An elaborate programme of clinics has already been arranged by the Philadelphia committee (Dr. John G. Clark, chairman). Membership in the Congress is not limited; it is open to all who attend and register. We suggest a visit to Philadelphia in November to all those surgeons who can conveniently get there. Such clinical meetings are well worth while and they can be made more and more so by encouraging them.

Surgical Suggestions

The history of typhoid several years previously will explain many cases of otherwise obscure localized bone abscess. The perforating cortical ("shirt-stud") abscess is characteristic of typhoid infection.

It is well known that trauma may determine a virulent octeomyelitis, requiring prompt attention. It is not so well known that it may determine a milder type of bone infection that soon recedes without operation. The former is most often met with in children, the latter in adults.

The old treatment of fracture of the neck of the femur by Buck's extension is as bad as it is archaic. In all but very old and very feeble subjects reduction and fixation in plaster by Whitman's method is the treatment of choice.

What appears like a mild cellulitis or beginning erysipelas following a rat bite is apt to be the local manifestation of a "rat-bite fever."

Even in the absence of a suggestive history, one should bear in mind the possibility of a foreign body as the cause of localized pain, tenderness, inflammation or impaired function, when the cause cannot otherwise be determined.

Needle thrusts are often only slightly painful, and thus it occasionally happens that there is buried in the tissues a fragment of needle, the entrance of which the patient did not appreciate or has quite forgotten.

Surgical Sociology

Ira S. Wile, M.D.
Department Editor

Regardless of the possible political differences that may arise, the agitation for the removal of Dr. Wiley from his high estate in the U. S. Department of Agriculture, a great benefit has been conferred upon the country through the large amount of attention that has been lavished upon the whole pure food question.

The public is in no position to appreciate the amount of adulteration that goes on day after day in all the food products from pepper to sausage and ice-cream. The enactment of pure food laws is but the beginning of adequate legislation to protect the purse and health of the consumers. Efficient inspection, sufficient penalties for failure to carry out the provisions of the food laws, and thorough enforcement of every clause that has been enacted into law is an essential part that is required to establish pure foods as the rule throughout the marts of trade.

The ignorant housewife, suffering from short weight, inferior grade and adulterated product, is merely the purchaser of various commodities. The consumer is the real person penalized by the consumption of impure food. The home is not the only place where adulterated articles for human consumption are to be found. Institutions, not omitting the hospitals, likewise share the fate of the unknowing purchaser. The lowest bidder is the worst enemy of the hospital or institution for the care of the sick, the poor, or the criminal. The largest quantity for the least money has been regarded as economy. Quality is as important as quantity. The poorest milk that is to be found in the city of New York is to be found at the milk supply of hospitals and asylums—at the very places from which there daily go forth men loudly advocating clean milk supplies for municipalities. The poor food that is supplied to nurses in many hospitals is frequently the subject of investigation, not to mention the lamentations of the internes that are heard from time to time. When the poor patient complains he is regarded as a crank, an ingrate or general kicker, and no investigation is made.

In the 6,000 hospitals of this country the daily cost per day per patient for raw foodstuffs was approximately 27 cents during 1910.

With an annual expenditure of $16,000,000 for raw foodstuffs, the hospitals should be duly interested in the problem of securing a thoroughly healthful supply of foods for the patients in the private pavilions and the public wards. What proportion of the canned goods, costing $420,000 per annum contains the admixture of materials other than those ordered by the purchasing agent? What is the nature of the preservative employed in their production? Are they in any way harmful to the sick? How long have the $240,000 worth of eggs been in cold storage and what is the number of rots and spots lost to the institution each year?

The "diabetic flours" that are called glutens, the saccharin lately condemned as harmful, have not been rated by physicians as in any way inimical to the public health. The doctors, who have abundant opportunity to investigate the food supplies of institutions and to observe their clinical effect upon the sick, have not given the accusing evidence. True, the occasional outbreak of an epidemic in a hospital or institution has been traced back to milk or oysters, or celery or lettuce. An occasional case of blindness has been shown to be due to the pink elephant brand of whiskey containing methyl alcohol. Lead poisoning has been recorded from the ingestion of canned vegetables, and ptomaine poisoning from canned fish or impure ice cream. The food problem is of infinite importance to the hospital and to the private practitioner. The effect of impure foods upon convalescence of surgical cases will bear investigation. The wastage of institutional funds in the purchase of foods that are not true foods, but merely condiments or stimulants, and the extravagance that results from the imposition of supplies that fail to come up to the government standards deserve investigation.

An attempt to retire the foremost advocate of pure foods should unhesitatingly be rebuked by the united profession that is constantly endeavoring to promote the public health. The pure food laws demand the active support of every class of persons that is alive to the duties connected with the conservation of the human species.

The pure drug act is but a special variation of the pure food bill. The protection is only secondarily for the physician; primarily the patient must be protected. Let the medical profession realize its obligations in this matter. Silence will no longer suffice. Aggressive measures must be undertaken that the public be properly enlightened as to the necessities of demanding the adequate protection that is its due in its food and drug supply.

Book Reviews

A Working Manual of High Frequency Currents. By NOBLE M. EBERHART, A.M., M.S., M.D., Professor and Head of the Department of Electrotherapy, Chicago College of Medicine and Surgery; Professor of Radiotherapy, High Frequency and Vibration, Illinois School of Electrotherapeutics; Radiotherapist, Francis Willard Hospital; formerly Attending Physician, Cook County Hospital; formerly Professor of Electrophysics; Postgraduate Medical School, Chicago, etc. Octavo; 303 pages; 63 illustrations. Chicago: NEW MEDICINE PUBLISHING CO., 1911.

Eberhart's little treatise gives one a very good idea of the salient points in treatment by high frequency currents. The volume is written very simply and understandingly. There is practically no other manual on the subject in English so that this work should have a wide distribution. The latter half of the volume is devoted to the special treatment of definite diseases and it emphasizes the remark so often made that high frequency therapy is valuable for so much that it may be valuable for nothing at all.

A Handbook of Practical Treatment, by many writers. Edited by JOHN H. MUSSER, M.D., L.L.D., Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and A. O. J. KELLY, Assistant Professor of Medicine in the University of Pennsylvania, Philadelphia. *Volume II.* Octavo; 865 pages. Philadelphia and London: W. B. SAUNDERS Co., 1911.

The second volume of this monumental work carries the excellent impression conveyed by the first. While the first volume was largely concerned with the general phases of therapy, the discussion of the treatment of special diseases is begun in the second. It is impossible to even superficially review the forty-three separate chapters embraced in this volume, and we shall merely touch on a few which are the longest and most important.

Lauder Brunton's chapter of 151 pages on Diseases of the Cardiovascular System is the brilliant, sensible and ripe presentation with which this author has made us familiar. In Surgery of the Heart, by Clinton T. Dent, we do not believe the author has done sufficient justice to the value of the silver wire electrical treatment for aneurism. Especially commendable is the chapter on Typhoid Fever, by Rufus I. Cole. He believes in prophylactic vaccination as devised by Wright and employed in the army. His attitude toward the various antitoxic methods of treatment of typhoid is conservtive and this criticism judicious. The chapter of 120 pages on Tuberculosis, by E. O. Otis, is largely concerned with the sanatorium treatment. He also embraces home treatment, prophylaxis, drugs, diet, etc. The author is a firm believer in the value of tuberculin. In the chapter on Syphilis, J. Wm. White and Alfred C. Wood are very conservative in regard to the value of salvarsan. They hold this drug to be still in the experimental stage and therefore give no specific directions for its use. The majority of the other chapters are small, mostly covering a few pages. The discussion, however, is full enough for all practical purposes and entirely modern. We have found nothing to criticize in them.

Joint Tuberculosis. By LEONARD W. ELY, M.D., Consulting Orthopedist to the County Hospital; Attending Orthopedist to the Children's Hospital, Denver, Col., etc. Octavo; 243 pages; illustrated. New York: WILLIAM WOOD & Co., 1911.

This book affords a welcome sense of relief to the reviewer in that it carries a distinct message. The author is not one who meekly accepts traditions. Unwilling to accept many of the current dicta on joint tuberculosis without adequate proof, he has set out upon a line of work which we believe fundamental in the attainment of a proper conception of disease processes—namely, a proper correlation between clinical findings and pathology. As in most instances in which the clinician resorts to a study of pathology, the result has been illuminating to the author. Ely has arrived at some highly significant and far-reaching conclusions, many of which throw over some of the accepted notions upon joint tuberculosis. It is impossible within the limits of this review to state all of the author's conclusions, and we shall content ourselves with merely summarizing the most important:

The primary tuberculous focus occurs either in the epiphysis or the synovial membrane, never or rarely in the bone proper, the cartilage or ligaments. These structures are affected only secondarily. Tuberculosis affects only those bones in which red marrow occurs. Where such marrow is not found, the bone is practically immune to a purely tuberculous involvement. This explains why tuberculosis of joints so frequently involves the epiphysis, because it is in the neighborhood of this structure that red marrow occurs. Synovial tuberculosis, on the other hand, probably does not originate in the smooth fibrous portions of the membrane, but rather in the fringes in the recesses of the joint, where there is found a distinct epithelioid covering and which are rich in lymphoid cells (similar in structure to the red marrow).

The important conclusions derived from these observations are the following: "Any procedure that causes the epiphysis of the long bone to lose its cancellous structure and to become compact bone, in other words, any procedure that changes the red or cellular or lymphoid marrow to the yellow, will cause a disappearance of the disease at that spot." And "any operation which deprives the synovial membranes of function causes them to lose their distinctive structure, and to change into fibrous connective tissue, will cure the tuberculous process."

Based upon these dicta, the author lays down two cardinal rules in the treatment of joint tuberculosis. 1. Deprive the joint of function. 2. Avoid secondary infection. Deprivation of joint function may be obtained either by immobilization or by operation (resection). According to Ely it is not necessary to perform the extensive resections practiced to-day. Resection, according to him, does not cure so much by removal of the diseased focus, as by abolishing joint function. This can be just as well attained by merely resecting sufficient of the ends of the bone to obtain firm boney union. The author has practised this method in a number of cases with good results. The advantages are obvious. As a general rule, Ely advises conservative treatment in the young and adolescents, and radical treatment in adults.

The author's arguments throughout appear to us very convincing and we believe his views will influence the conception and treatment of joint tuberculosis considerably.

The first half of the book concerns itself with the general aspects of the subject, of which the above summary is a mere sketch. In the second half, Ely discusses the clinical features of joint tuberculosis regionally. His discussion is clear, fairly complete, well balanced and charged with individuality. The work concludes with a number of typical case histories and a good index. The author's style is lucid and emphatic. The illustrations are all original, well chosen and beautifully executed. This is particularly true of the microphotographs.

We do not mean it tritely when we say that everyone interested in joint tuberculosis should own this book.

An International System of Ophthalmic Practice. Edited by WALTER L. PYLE, A.M., M.D., Philadelphia. **Therapeutics.** By DR. A. DARIER, Paris. Translated by SYDNEY STEPHENSON, M.B., F.R.C.S., London, late Honorary Secretary of the Ophthalmological Society. Octavo; 444 pages; illustrated. Philadelphia: P. BLAKISTON'S SON & Co. 1910. Price, $4.00.

In the above volume Darier has produced a condensed reference work of the greatest value to the student as well as the practitioner. As stated by the editor in his preface, Darier has endeavored to set forth concisely the established up-to-date methods of ophthalmic therapeutics and in this endeavor he has been eminently successful. The first part of the volume deals individually with all the therapeutic agents at our disposal, medicinal, biological, chemical, physical and mechanical, showing the rationale of their application, their action, limitations and methods of application. There is a sufficient admixture of the theoretical to make the work interesting without being involved. The fifth chapter, on Serum-therapy, requires particular mention as being a most lucid, comprehensive and up-to-date resumé of this difficult subject.

The second part of the volume deals with the various ocular diseases, giving a brief clinical description of each and a critical analysis of the various methods of treatment. Much attention is paid to practical points of treatment, and the arrangement of the work itself is most practical, making reference to any particular subject very easy. The only fault, if it is a fault, that might be found with the work, is a strain of therapeutic optimism pervading it.

Training of the Young in Laws of Sex. By REV. THE HON. E. LYTTELTON. **Healthy Boyhood.** By ARTHUR TREWBY, M.A.

These two little books, from the press of Longmans, Green & Co., will be found of great value to the intelligent physician to whom so many questions are addressed by parents with regard to teaching children sex facts. Both are sanely written and approach the general subject in a convincing manner born of experience with the training of children.

The House Fly. Disease Carrier. An account of its dangerous activities and of the means of destroying it. By L. O. HOWARD, Ph.D. Duodecimo; 310 pages. New York: FREDERICK A. STOKES Co.

An authoritative work written in popular language but with scientific accuracy is now available for all who may be interested in the life history of the fly and its relation to public health. Especial attention has been given to the remedies and preventive measures adapted to fighting this dipterous pest. The illustrations are abundant, well chosen, and splendid in their detail. A thirteen page bibliography of the subject deserves a line of commendation. From every point of view the book delights the reader and the readers should be numerous.

St. Luke's Hospital (New York) Medical and Surgical Reports. *Vol II*, 1910.

A valuable report of some of the surgical and medical progress of the institution from which the report is sent forth.

Among the features of the surgical portion of the volume are the paper by Dr. Abbe on Resection of Posterior Roots of Spinal Nerves within the Dura, to Relieve Pain, Pain Reflex, Athetosis and Spastic Paralysis; Dr. Lyle's paper on Albee's Operation for Arthritis Deformans of the Hip, and Dr. Schley's report of Ileocolic Intussusception with Resection of Twenty-two Inches of Gangrenous Gut, with Recovery.

Large Fees and How to Get Them.

To the Editor:—A book entitled "Large Fees and How to Get Them," has recently appeared, published by one W. J. Jackman, which purports to contain an introductory chapter written by me. The book is being advertised as having been jointly written by one Dr. A. V. Harmon and myself. I desire to state that my name is being fraudulently used. I know neither the publisher nor Dr. Harmon, nor did I ever write a line for the book. The introductory chapter and several later chapters—for which latter, credit is not given—were, without my permission, taken bodily from my "Medicine as a Business Proposition." There is no Dr. A. V. Harmon, in either the Blue Book or American Medical Directory. He is in my opinion a blind, the authorship of the book resting with the publisher. All persons selling or circulating same, or advertising or reviewing the book in connection with my name, do it at the risk of legal complications. I would respectfully ask the medical journals of the country to copy this letter verbatim, thus warning the profession against what, so far as the use of my name is concerned, is a fraud, pure and simple. The title of the book alone should condemn it, while as for much of its contents, the less said the better.

G. FRANK LYDSTON, Chicago.

Books Received

Studies in Cardiac Pathology. By GEORGE WILLIAM NORRIS, A.B., M.D., Associate in Medicine at the University of Pennsylvania, Visiting Physician to the Episcopal Hospital, Philadelphia, etc. Large octavo; 233 pages; 85 original half-tone illustrations. Philadelphia and London: W. B. SAUNDERS Co., 1911. Cloth, $5.00, net.

Practical Motherhood. By HELEN Y. CAMPBELL, L.R.C.P., and S. EDIN, L.F.P., and S. GLAS. Small octavo; 535 pages; illustrated. New York and London: LONGMANS, GREEN & Co., 1910.

Training of the Young in Laws of Sex. By REV. THE HON. E. LYTTELTON, Head Master of Eton College. *Eighth Impression.* Duodecimo; 117 pages. London and New York: LONGMANS, GREEN & Co., 1910.

Progress in Surgery

A Résumé of Recent Literature.

Some Problems in Gastro-Intestinal Surgery. J. M. T. FINNEY, Baltimore. *Journal of the American Medical Association*, June 3, 1911.

Finney discusses certain problems of gastro-intestinal surgery, and says that the progress that has been made and the perfection of the technic lead to a certain danger. Because, on the one hand, the diagnosis is often so difficult, and requires special training for many of the tests, and superior knowledge in their interpretation, while, on the other hand, the operation has become so much more safe and exact. Therefore, the temptation to slur over the examination and history and rely on an easy exploratory operation is becoming more difficult to resist. To avoid the performance of an unnecessary operation and to prevent unpleasant results, at least four things should be kept in mind: (1) a correct diagnosis should be made; (2) every care and detail should be observed to make the operation technically perfect; (3) existing conditions should be accurately observed and properly interpreted; (4) the results of operative procedures should be carefully watched and recorded in sufficient numbers and covering long enough periods of time to enable one to judge of the end-results of a given line of treatment. If there were more co-operation between surgeons and physicians in observation there would be more success. Finney points out and illustrates by cases reported, some of the difficulties which are met with. For example, gastro-intestinal neurasthenics, so called, where operation does not reveal a state of affairs readily comprehensible. Two cases of this sort are reported, and he calls attention particuarly to certain pathologic conditions found. These were (1) a greatly dilated upper duodenum and patent pylorus, and (2) the great redundancy of the colon, especially the transverse portion, and its malposition. The first of these he is as yet unable to explain. With it are associated almost invariably changes in the pancreas similar to what has been called chronic pancreatitis by Mayo Robson, and Finney thinks that the two are in some way connected, but just how he does not say. The colonic conditions he is inclined to think will be explained ultimately by the absorption of bacterial toxins. Every case of stomach trouble, he says, is a difficult problem, requiring careful consideration of not only a long list of abdominal disorders, but of some extra-abdominal ones also, and it may at times be most misleading. Great latitude has to be given in interpreting the operative findings, and he reports illustrative cases in addition to those already reported. His summary of the paper is given as follows: "1. Problems of diagnosis present greater difficulties and are further from solution than those of treatment. 2. Certain operative procedures, gastro-enterostomy, e. g., have reached such a state of perfection that the ease of performance renders them a possible menace and calls for greater care in the proper selection of cases. 3. The tendency to dogmatize on too little evidence in matters pertaining to the causation and treatment of the so-called functional intestinal neuroses should be discouraged, and a more scientific observation, interpretation, collection and record of established facts substituted therefor. 4. As a result of the knowledge gained by such comprehensive and exhaustive study of the intricate problems involved, it is not unreasonable to hope that, ultimately, in carefully selected cases, surgery may offer relief to this unfortunate group of gastro-intestinal neurasthenics."

The Dilatation Test for Chronic Appendicitis. W. H. BASTEDO, New York. *American Journal of Medical Sciences*, July, 1911.

Bastedo reaffirms the value of his test in the diagnosis of chronic or latent appendicitis. This test consists in dilating the colon with air through a rectal tube. "If, as the colon distends, pain and tenderness to finger point pressure become apparent at McBurney's point, there is appendicitis.

The test is not required in acute cases, or in undoubted chronic cases. The author recommends it in cases of persistent hyperchlorhydria. As is well known, a latent appendicitis may have its chief manifestation in a stomach derangement. The test is of especial value in differentiation between appendicitis and disease of the right adnexa. The author reports five cases in which the test proved of value.

The Selection of Operation in Biliary Disease (Primary Cholecystectomy versus Cholecystostomy). HOWARD LILIENTHAL, New York. *New York Medical Journal,* July 1, 1911.

Lilienthal has always been an advocate of cholecystectomy and is not in sympathy with the recent trend of surgeons toward cholecystostomy. He renews all the arguments that have made in favor of the latter operation and sees no reason to change his view. His only contraindications to cholecystectomy are the following: 1. Grave complicating diseases, *e.g.* typhoid fever. Here, also, he advocates later removal of the gall-bladder to prevent as far as possible the patient becoming a typhoid carrier. 2. Complete obstructive jaundice. A second stage removal of the gall-bladder is even here indicated, especially if the patient has signs of hepatic cirrhosis. 3. In aged or feeble patients and in those who take the anesthetic badly, in order to save time and shock. Lilienthal describes minutely his operation of cholecystectomy.

Acetone in Inoperable Cancer of the Uterus. A. SAMUELS, Baltimore, *New York Medical Journal,* June 3, 1911.

Samuels has used this method of Gelharn's in five cases and is well pleased with his results. The pain lessens, the discharge diminishes, the odor is abolished, the hemorrhages abate and the patient feels generally improved. Briefly, the method of treatment is the following: Under anesthesia the cavity is curetted. After introducing the Ferguson speculum and elevating the hips, one-half to one ounce of acetone is poured into the wound and allowed to remain for 15 to 30 minutes. The acetone is allowed to run out and the cavity is packed with gauze soaked in acetone, and the excess of acetone is sponged off the walls of the vagina. Subsequent applications are made without anesthesia—the first, five or six days after the operation, and subsequently two or three times a week. Care should be taken that the acetone does not come in contact with the vulva; for this, a preliminary application of vaseline to the vagina and vulva is recommended.

The Diagnostic Significance of the Urinary Methylene-Blue Reaction with Special Reference to Malignancy. Preliminary Report. JACOB FUHS and WM. LINTZ, Brooklyn, *Journal of the American Medical Association,* June 24, 1911.

Fuhs and Lintz give in a preliminary report their finding that methylene-blue is decolorized by the urine of patients suffering with malignant disease. The same is true sometimes in cases of rheumatism, nephritis, meningitis, etc., but generally to a minor and variable degree. In most instances these latter diseases can be easily differentiated and eliminated, so it seems that the test may have some value in the diagnosis of malignant disease. Thus far it has been positive in every well-established case of malignancy. The technic is described as follows: "Methylene-blue—we generally use 3 to 5 drops of Löffler's methylene-blue—is added to a test-tubeful of fresh urine; sufficient anilin dye is used to give it a decided blue color. The urine is shaken and then allowed to stand at room temperature for from twelve to twenty-four hours. A control fresh specimen of normal urine similarly treated is made. At the end of said time the blue color of the urine disappears; the upper layer, however, which is in contact with the air, still remains more or less blue. The control specimen, on the other hand, remains unchanged, retaining its uniform blue color." A list of the diseases in which the test has been employed with the number of cases of each tested and the number of positive and negative reactions obtained is given in the paper.

An Experimental Study of the Causes which Produce the Growth of the Mammary Gland. R. T. FRANK and A. UNGER, New York. *Archives of Internal Medicine,* June 15, 1911.

In an extremely painstaking circumspect and precise series of animal experiments, Frank and Unger endeavored to corroborate the tacitly accepted theory of Starling, that a harmone derived from the fetus caused the hypertrophy of the breast in pregnancy. They could not obtain the results claimed by Starling but concluded that Starling's theory has not been demonstrated and "must be considered purely hypothetical." They also showed that Basch's theory of an ovarian-placental interaction, likewise lacks proof. Frank and Unger offer the following general conclusions:

1. Intra-uterine, prepuberty and puberty growth of the breasts is directly dependent on ovarian function. 2. Cyclical change in the virgin breast occurs under the influence of the ovary. 3. Castration does not cause rapid regression of the cyclical breast hyperplasia. 4. No proof has been offered to show that the fetus or placenta directly produces growth of the breast in pregnancy. 5. Evidence points to the fact that the persistent corpus luteum of pregnancy may produce this breast growth. 6. The factors which favor or cause the peristence of the corpus luteum are unknown. 7. Certain evidence (increase of the breast produced by hydatid mole without fetus, chorioepithelioma) makes it unlikely that the fetus is at any time the controlling factor. 8. Milk secretion is not index of quantitative increase in breast tissue. 9. Under physiological conditions milk secretion sets in when the ovarian influence is removed—in the new-born after birth; in the puerpera as the corpus luteum of pregnancy regresses; sometimes postoperatively after castration in the virgin (if the breast has been activated by the corpus luteum of menstruation?)

These conclusions are set forth by the authors as tentative, and may require modification by subsequent research.

Six Cases of "Utriculoplasty" for Uterine Hemorrhage. V. BONNEY, London *Lancet,* May 13, 1911.

By "utriculoplasty" Bonney refers to the operation devised by Kelly for cases of uncontrollable uterine hemorrhage. This operation consists in a wedge-shaped excision of the greater part of the uterus. The base of the triangle being situated at the tubo-uterine junction, while the apex lies at the internal os. This excision leaves a strip of uterine muscosa on the lateral aspects of the uterine cavity which is continuous with that of the cervix below. The two moieties of the uterus are then united, first by a series of deep mattress sutures, then by a continuous superficial suture. The result was entirely satisfactory in all of the author's six cases. In one case, a number of fibroids were removed by this method. Four of the six patients menstruated normally; one had a recurrence of the hemorrhage six months later, but the prospects of a successful result are good. One case is too recent to be judged. One patient became pregnant four months after the operation and was delivered uneventfully at full term. Bonney regards the operation as superior to hysterectomy in every way.

The Results of the Treatment of Two Thousand Cases of Miscarriage at the Boston City Hospital. E. B. YOUNG and JOHN T. WILLIAMS, Boston. *Boston Medical and Surgical Journal,* June 22, 1911.

1. Spontaneous emptying of the uterus takes place in but about 13.2 per cent. of all miscarriages.

2. The likelihood of a miscarriage to complete itself increases with the duration of pregnancy.

3. When it becomes necessary to use artificial means to complete the miscarriage, the finger followed by the curette in later miscarriages, and of the curette alone in the earlier months of pregnancy has given uniformly satisfactory results at the Boston City Hospital.

4. Experience has shown that where the cervix is extremely rigid it is better to introduce the curette and break up the fetus and placenta and remove them piecemeal than to attempt to dilate the cervix sufficiently to introduce the finger.

5. Packing the vagina and lower segment of the uterus is an unsatisfactory and often unsuccessful method of emptying the uterus. No success whatever was obtained in treating incomplete miscarriages in this way.

6. Packing is, however, of great value in two classes of cases.

First, in exsanguinated patients, to stop the hemorrhage and give the woman a chance to recover somewhat from the loss of blood before emptying the uterus.

Second, when the cervix is very rigid, a tight cervical pack for twenty-four hours will soften it so that dilatation may be attempted with safety.

7. The results of artificial methods are as good as, but not better than where nature has succeeded in emptying the uterus.

8. Artificial methods are necessary in a majority of cases, however, simply because nature has failed.

9. In infected cases the essential thing is to get rid of the infectious material by emptying the uterus; the particular method employed making little difference.

10. The later in pregnancy miscarriage occurs the smaller the liability to become infected, but the greater the likelihood of developing grave septic complications if infection does take place.

11. The mortality is practically the same at all periods of pregnancy.

12. Induced abortions have a greater mortality than accidental. The mortality of patients admitted to the hospital after criminal abortions was 10 per cent.

Venous Anastomosis for the Cure of Varicose Veins. Venovenostomy. H. E. CASTLE, San Francisco. *Journal American Medical Association*, May 20, 1911.

Castle describes the method devised by himself and Dr. Ryfkogel of venous anastomosis. Delbet's operation, which they first performed, consists of terminal implantation of the proximal end of the distal fragment of the internal saphenous vein into the side of the superficial femoral vein. Its drawback is the danger of forming a thrombus occluding the femoral vein, and to avoid this they concluded to make an end-to-end anastomosis of a branch of the superficial femoral with the internal saphenous vein. Thus the valves of the femoral vein are utilized to support the heavy column of blood which in the normal subject is supported by the valves of the saphenous, and the lower part of the saphenous is relieved of all backward pressure from the inflow of blood into it from the superficial external pudic, superficial epigastric, superficial circumflex iliac and other smaller tributaries. The branch of the femoral vein that they use may be absent, and in this case Delbet's, Trendelenburg's or Ferguson's methods may be employed. Trendelenburg advises ligature of the saphenous in the upper thigh, while Ferguson removes a section of the saphenous near its upper end and, after making a circular skin flap, removes the varicose veins from the lower part of the thigh and those from the inner aspect of the leg. Success of venovenostomy depends almost entirely on asepsis and avoidance of injury to the veins, and Castle dwells on these points. The preparation of sutures is of special importance. For these details the reader is referred to the original.

Acute Inflammation of Long Bones, With Special Reference to Excision of the Diaphysis. R. G. LE CONTE. Philadelphia: *Boston Medical & Surgical Journal*, June 1, 1911.

Le Conte concludes:

(1) The mortality and extent of the necrosis following acute inflammation of bone depends not only upon the promptness of surgical interference, but also upon its thoroughness.

(2) That suppuration beneath the periosteum does not exclude an infection of the medulla, the presumption being that after three days the medullary cavity is also involved.

(3) That within seventy-two hours of the onset of the disease osteoperiostitis is localized usually in the cortex of the bone, and incision, disinfection and drainage are sufficient to bring about a cure. If there is no marked diminution of the symptoms in twenty-four hours after incision and drainage, the medullary cavity should be opened.

(4) When the medullary cavity is opened and found healthy, the dangers from infecting it are slight.

(5) In the majority of his cases osteomyelitis was due to a neglected osteoperiostitis.

(6) In operations after the third day, where systemic symptoms are pronounced, the medullary cavity should always be opened and the opening should be sufficiently long to expose healthy marrow, and sufficiently broad and long to expose healthy bone.

(7) His mortality of 10 per cent. was directly due to delay in operation, and to inefficient surgery at the primary operation. In five of these cases the surgery was at fault, and had a radical operation been done all would have recovered. In the sixth case the delay in operation was perhaps more responsible than the surgery for its fatal termination. It is but fair to say that in collecting these 60 cases, perhaps 40 more were rejected for various reasons, none of whom died, so a mortality of 6 per cent. is nearer the truth.

A Case of Typhoid Osteomyelitis Successfully Treated with a Vaccine. RANDLE C. ROSENBERGER, Philadelphia. *N. Y. Medical Journal*, May 13, 1911.

Rosenberger reports the cure of an osteomyelitis of the rib complicating typhoid, which he cured by the injections of an autogenous vaccine which he made from cultures of the typhoid bacillus found in pus discharging from the lesion.

Tendon Suture. F. L. RICHARDSON, Boston. *Boston Medical and Surgical Journal*, May 25, 1911.

The important things to be borne in mind in order of their importance, are: 1. Asepsis. 2. Preservation of peritendineum. 3. Approximation of ends. 4. Restoration of tendon sheath. 5. Dryness of wound.

An Experimental Study of Tendon Regeneration. J. W. SEVER, Boston. *Boston Medical and Surgical Journal*, May 25, 1911.

(1) Silk or linen thread is an excellent material to use to lengthen tendons in suitable cases.

(2) The growth of new tissue will penetrate and permeate the silk only slightly, and in some cases not at all, and does not absorb it.

(3) When the peritendineum and tendon sheath have been removed, some foreign body such as silk is essential for regeneration, to serve as a director for the new growth.

(4) With the sheath and the peritendineum present and sutured, no foreign body need be inserted. In this case the new growth is true tendon tissue.

(5) Without the presence of the sheath and the peritendineum, no true tendon tissue can be regenerated. Such tissue is merely fibrous tissue, lacking elasticity and subject to stretching.

(6) The new "tendons" are apt to be larger and stronger than the resected ones, especially when silk has been used to replace the resected portion.

(7) Provided the sheath and peritendineum are preserved and function allowed early, adhesions may not occur. Without the sheath, adhesions may and do occur much more frequently.

Suppurative Arthritis of the Knee-Joint, Due to Influenza Bacillus, Occurring in a Baby Aged Six Months. ELIZABETH T. FRASER, Glasgow, *Lancet*, June 10, 1911.

An apparently healthy child was suddenly seized with pain and swelling of the knee joint. The child was feverish and the joint was much swollen. Eight days after the onset the joint was opened and a large quantity of pus was evacuated. Thereupon recovery was uneventful. In smears and cultures the bacillus of Pfeiffer was found in the pus.

"Forster's Operation" of Posterior Root Section for the Treatment of Spasticity. OTTO MAY, London, *Lancet*, June 3, 1911.

Forster recommended division of the posterior spinal roots for severe forms of spastic weakness, especially in cases of cerebral diplegia, old hemiplegias, etc. The prin-

ciple of the operation depends upon the fact that the spasticity is due to loss of inhibitory control from the higher centers. The operation consists essentially in the division of the apparent paths to the affected groups of muscle, without producing either ataxia or anesthesia. It has been proven that anesthesia does not occur unless three consecutive posterior roots are divided; Forster recommends therefore that no more than two should ever be divided. The selection of the roots depends upon careful anatomical study, for which a table is offered. The indications for the operation are: 1. The presence of such severe contracture as to make standing and walking impossible. 2. The occurrence of painful cramps in the affected limbs. Thus far better results have been obtained for affections of the lower extremity than for the upper. May describes the operation carefully, which is preferably done in two stages. At the first a laminectomy with proper exposure of the dura is done. At the second the dura is opened and the affected posterior roots are resected. The after-treatment is important and includes correction of deformity by mechanical means, plastic operations to overcome organic contractures and exercises. May reports a case with operation, in which the result thus far is satisfactory.

An Easy and Certain Method of Diagnosing and Following a Fistulous Tract. Jerome M. Lynch, New York. *Medical Record,* June 3, 1911.

Lynch speaks especially of fistula in ano and lays stress on three importance points. 1. Tuberculous fistula should not be opened with the knife, but with the cautery. The reason is that the knife opens new channels for local and even general infection. 2. The best method of tracing complicated fistula is by the injection of a mixture of peroxide of hydrogen and methylene blue. This solution stains the finest ramifications of the tract, so that they may be easily followed and opened. 3. The after-treatment should be painstaking. The wound must be dressed carefully, so that each tract may heal from the bottom.

Statistical Results of the Treatment of Tetanus by Subcutaneous Carbolic Acid Injections. (*Statistische Resultate der Behandlung des Tetanus mit subcutanen Carbolinjektionen*). G. Bacelli, Rome, *Berliner klinische Wochenschrift,* June 5, 1911.

Of 94 cases of severe tetanus collected from the literature (mostly Italian) treated by Bacelli's method, only two died. Of 38 very severe cases, 16 died. Of the latter, Bacelli excludes 11 cases because the administered doses were wholly insufficient. The mortality of the latter series is therefore reduced to 18.5 per cent. Considering that the mortality of severe cases of tetanus is 100 per cent., Bacelli believes that these statistics speak for themselves. Bacelli uses a 2-3 per cent. watery solution of carbolic acid which is injected subcutaneously. The initial dose should never be above 0.3-0.5. As soon as the proper tolerance of the patient is established (urine examination) the size of the dose is increased rapidly until the patient takes 1-1½ grammes in the course of 24 hours. Tetanus patients tolerate carbolic acid in surprisingly large doses, indeed Bacelli formulates the axiom, that the toleration is directly proportionate to the severity of the case.

Post-Operative Double Frontal Sinusitis. Extensive Osteoma of Frontal and Nasal Bones and Orbital Fossae, with Superimposed Lipoma. Causal Factor, Framboesia (Yaws). C. Doremus Van Wagenen. *The Laryngoscope,* May, 1911.

The patient was a woman, 49 years old, Spanish, living in Cuba. Early history reveals trouble with sores on the plantar aspect of the heels. At 39 years she had a severe affliction of the knees and joints of the fingers which confined her to bed for a number of weeks. About six months after this she noticed a small swelling on the forehead, just above the nose, which slowly increased in size. Two years later a swelling occurred over the right eye with a slight protrusion of the eyeball. Six months later a similar swelling began on the left side. She submitted to an operation under local anesthesia and the supraorbital regions were cleaned out. She obtained relief for about four months. Then swelling began again on both sides, being greater on the right side. Three operations were performed and injections of mercury given without result.

Six months before examination she lost the nails of the great toes of both feet. She stated that this loss of toenails occurred several times after her so-called rheumatic attacks.

On examination she showed a dome-like frontal swelling, dense and hard at the hair-line, softer nearer the eyebrows. Here it became merged into a broad edematous area covering both supraorbital arches, extending down to the nose, out over the eyes and reaching its limitations at the molar eminences. In order to see, the patient was compelled to retract the lids with the fingers. There was a pronounced exophthalmia and a divergent squint of thirty to forty degrees. The nares were closed with polypi. Transillumination showed both sides of the face in darkness. An operation on the sinuses was advised. At operation, the sinus as such could not be demonstrated. In its location (right) was found a collection of sequestra, hummocks of greenish-brown bone surrounded by granulations, polypi and gelatinous material under pressure. While forcibly retracting the upper skin-flap the base of the large frontal tumor was exposed. A diagnosis of lipoma was made. The left frontal sinus was found to be in similar condition, though less so.

At the time of operation, the case was supposed to be specific. She was given mixed treatment. The exophthalmos subsided and the squint has disappeared. Later the Wassermann test was reported negative. It was suggested that possibly the disease was henpuye, a tropical disease. This usually starts in the nasal processes of the superior maxilla and grows slowly until it often closes both eyes. It is apparently a proliferating periostitis. It appears after a varying period following an attack of framboesia or yaws. Its cause is a spirillum closely allied to the spirochaete. Any abrasion of the skin will admit the spirillum. The disease is entirely extragenital. After the initial sore, granulomata appear which from their resemblance to a raspberry are called yaws. The main treatment is iodide of potash. Mercury has proven useless.

Acute and Chronic Inflammation of the Maxillary Sinus. Thomas Chew Worthington. *The Laryngoscope,* May, 1911.

Acute inflammation of the maxillary sinus when uncomplicated is most frequently seen as the result of influenza and is quickly relievable by attention to the acute rhinitis, or when necessary by the puncture and irrigation of the sinus through the inferior meatus. Chronic maxillary sinusitis may be caused by a neglected or unrecognized acute inflammation or may be caused by diseased conditions in the ethmoidal or other cells or from pneumonia, typhoid fever and other acute infectious diseases or may be of dental origin.

The operation for the cure of chronic inflammation, if accompanied by disease of the other sinuses, should begin with the radical treatment of the diseased ethmoidal, frontal or sphenoidal sinuses and at the same time the removal of sufficient of the maxillary sinus wall, below the inferior turbinate to insure complete and permanent drainage and aeration of the sinus. Should the inflammation be of dental origin, the removal of the offending tooth and an opening in the naso-antral wall will insure a perfect and permanent cure.

The diagnosis of disease of the maxillary sinus is easily made in those cases where the subjective and objective symptoms are plain. But since the greater number of cases of chronic maxillary inflammation show few or no symptoms one must depend upon the operative opening of the sinus to make a diagnosis.

There are few dangers to the operation. Among these are puncturing the roof of the sinus, wounding the infra-orbital canal and cutting the posterior external nasal artery. The chief points in the success of the operation (making an opening in the inferior meatus) are to make it large enough and to establish it permanently.